PB83-113217

TSP Source Inventory Around Monitoring Sites in Selected Urban Areas, St. Louis

PEDCo-Environmental, Inc.
Kansas City, MO

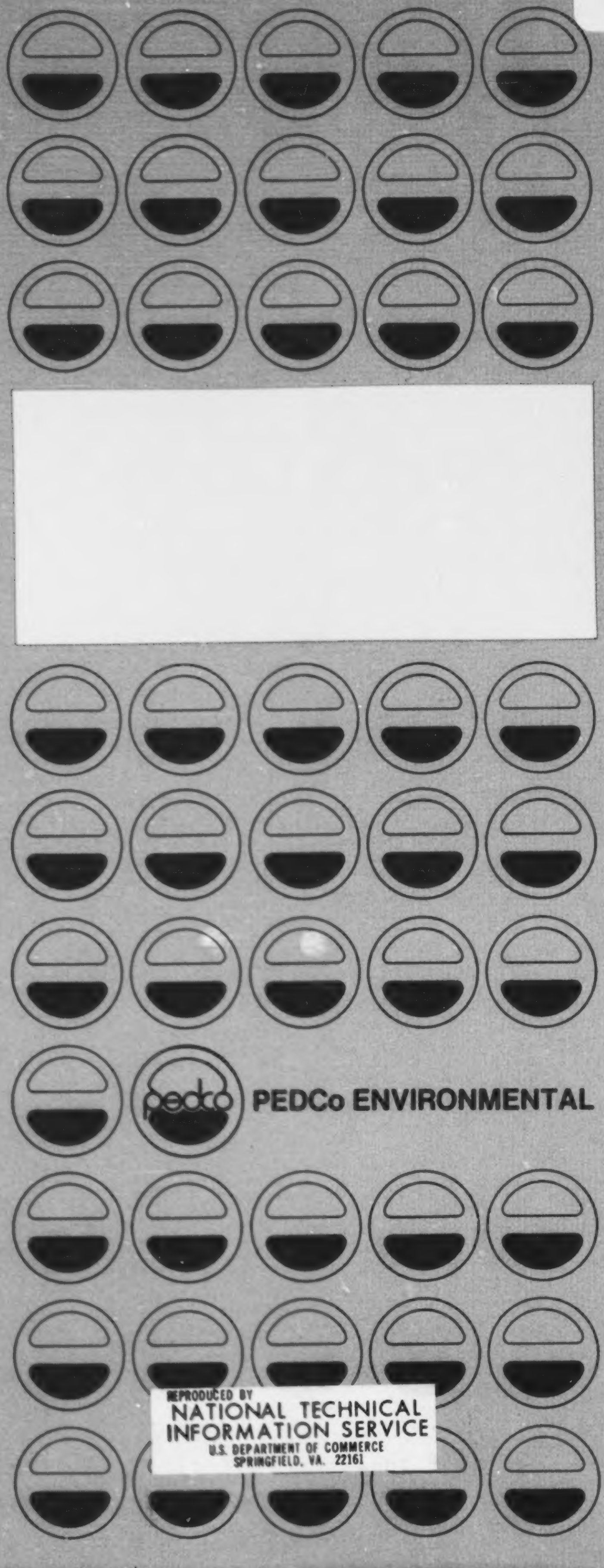
Prepared for

Environmental Protection Agency
Research Triangle Park, NC

May 79

U.S. Department of Commerce
National Technical Information Service
NTIS

PB83-113217



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May 79

PERFORMER: PEDCo-Environmental, Inc., Kansas City, MO.
Contract EPA-68-02-2603

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EPA is developing an empirical model to relate ambient air quality to particulate emissions and land use in the surrounding area. This receptor-oriented model will be used for evaluating the effect of particulate control measures on concentrations at individual sites in a sampling network or for predicting air quality at a location where there is no sampler. Several studies have indicated that there is a statistically significant relationship between particulate concentrations measured at a high volume sampler and the emission density within a limited radius surrounding that site. The present report summarizes information for sites in the St. Louis area. The 23 high volume sampling sites inventoried in the St. Louis area have a wide distribution of exposures ranging from industrial to background. The data collected for 11 of the sites are presented in Chapter 3. The data collected by Rockwell for the RAMS sites are presented in Chapter 4. These data have been revised to correspond to the format of the other 11 sites. The methodology for performing the microinvento, ...

KEYWORDS: *Mathematical models, *Particles, *Air pollution, *Air quality, *Air pollution sampling.

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PRICE CODE: PC A09/MF A01

TSP SOURCE INVENTORY AROUND
MONITORING SITES IN
SELECTED URBAN AREAS,
ST. LOUIS

Prepared by

PEDCo ENVIRONMENTAL, INC.
2420 Pershing Road
Kansas City, Missouri 64108

Contract No. 68-02-2603
Task No. 15

EPA Project Officer: Thompson G. Pace

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Monitoring and Data Analysis Division
Research Triangle Park, North Carolina 27711

May 1979

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1. INTRODUCTION

EPA is developing an empirical model to relate ambient air quality to particulate emissions and land use in the surrounding area. This receptor-oriented model will be used for evaluating the effect of particulate control measures on concentrations at individual sites in a sampling network or for predicting air quality at a location where there is no sampler.

Several studies have indicated that there is a statistically significant relationship between particulate concentrations measured at a high volume sampler and the emission density within a limited radius surrounding that site.~~[1,2,3,4,5]~~ It is EPA's intention to improve the correlation observed for this basic source/receptor relationship by accounting for some or all of the following factors in the empirical model:

con't on PS 4

- distance to sources
- direction of sources
- differential impact of point and area source emissions
- sampler and source heights
- surrounding land use

By using weighting factors for different emissions in the area around the sampler, the model will build on the basic relationship and attempt to increase its accuracy.

The model will utilize data obtained from a technique referred to as a microinventory. The original microinventory procedure, as outlined in a 1974 report,[1] consisted of an inventory of particulate sources within a 1.5 mile radius of a high volume sampler and the calculation of an average emission density (in ton/mi^2/yr) for the entire area. Subsequent reports have reduced the area to a one mile radius but left the other procedures essentially the same.[2,3] Most of the improvements in the technique in these reports have occurred as a result of fugitive dust emission factor development.

The next refinement of the inventory technique was based on an observed relationship between particulate concentrations and average daily traffic (ADT) on nearby streets.[5] Available traffic and TSP data for two cities indicated that ambient concentrations were directly related to ADT on the nearest street and inversely related to the slant distance (hypoteneuse of height and horizontal distance) from the sampler to that street. This relationship has been incorporated into the microinventory by giving special consideration to streets and other localized sources (within 200 ft of the sampler) during the field survey.

The concept of decreasing impact with distance has been expanded in recent particulate analyses to include classification of point and area sources into different ranges of distance from the sampler.[6,7] The sources were also classified by general direction from the sampler. Emissions from all area sources within 1/4 mile of the monitor were tabulated. Separate tabulations were made for sources within a 1/4 to 1/2 mile radius and a 1/2 to 1 mile radius, with each of these two radii being divided into quadrants. Thus, a total of nine sectors within the 1 mile radius were considered separately in the area source emission inventory.

In these same partiuclate analyses, point source emissions within a five mile radius were tabulated with respect to distance and direction from the monitor. The larger radius was specified for point source emissions because of their greater dispersion potential than lower level emissions from area sources. It is relatively simple to calculate or scale from a map the distance from each point source to the monitor. Likewise, the compass direction from the monitor to the source can be easily determined.

An additional refinement of microinventory procedures has recently been proposed, but not yet fully evaluated. Land use in the area surrounding the sampler is thought to be related to the concentration measured at the sampler. A recent study reported the predominant land use in each of the nine sectors in the area source inventory area.[7] A land use determination was also made for the area from 1 to 3 miles from the sampler and the 1/4 mile radius sector was further divided into four quadrants for land use classification.

All of the refinements described above have been incorporated in the microinventories for developing the empirical model. This will permit variables such as distance, direction, point vs. area source, height and land use to be included in the resulting model if they are shown to improve its predictive capabilities. It has been estimated that this detailed emission data and land use information is needed for approximately 100 sites in order to adequately consider all these variables.

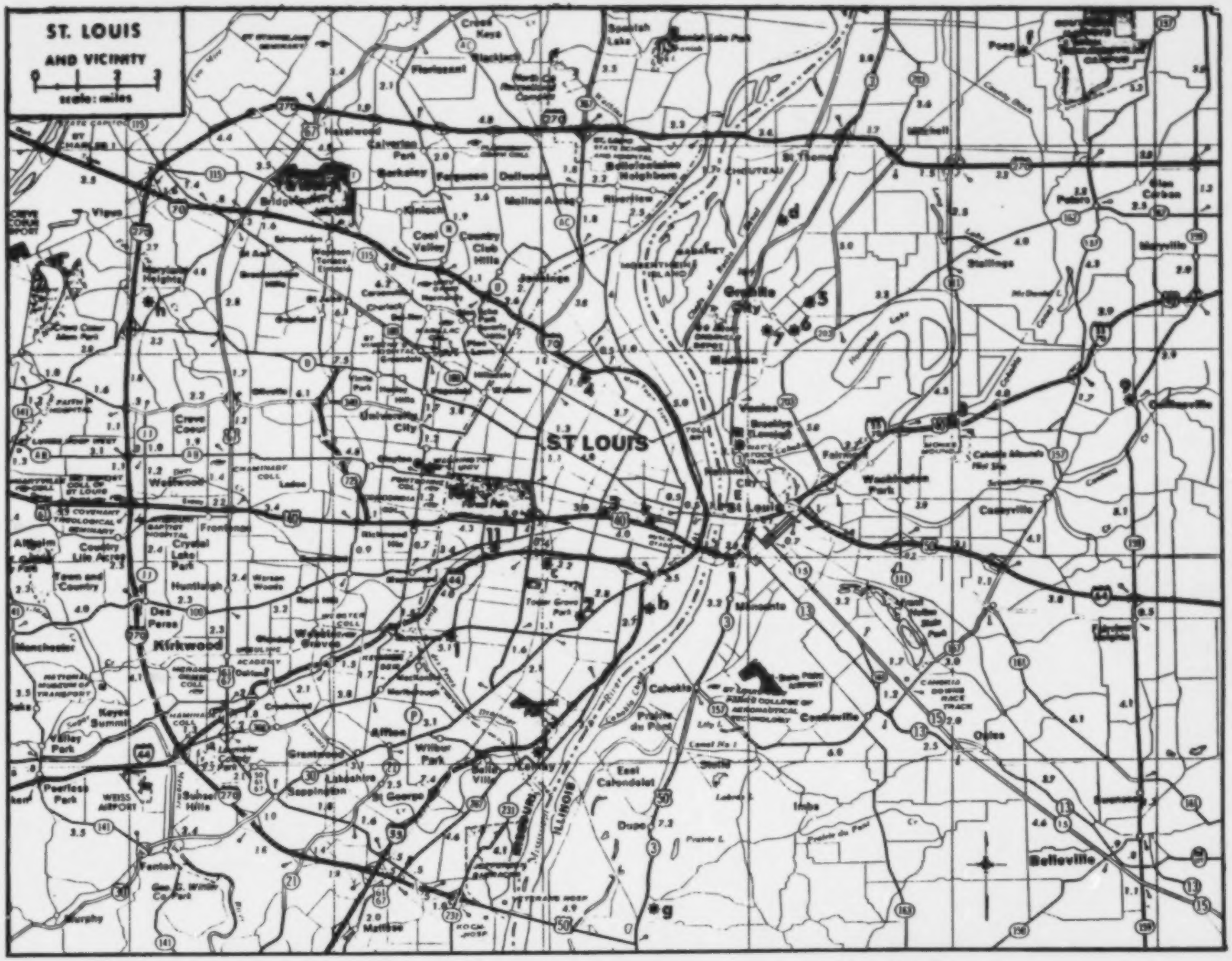
PEDCo Environmental is collecting most of this detailed data base and providing it to EPA in the form of a series of reports, one for each of the five cities in which sites are to be surveyed:

Kansas City	- 32 sites
Portland	- 10 sites
St Louis	- 11 sites
Birmingham	- 14 sites
Philadelphia	- 10 sites

Another contractor, GCA Corporation, is providing information for 12 sites in the Boston area. In addition, Rockwell International is providing corresponding data for 12 sites in their RAMS sampling network in St. Louis. Altogether, this will provide EPA with data from 101 sites.

Each of PEDCo's reports follow the same format as this one. The reports are confined almost entirely to data presentation; data analysis and model development will be performed by EPA. All of the data in this report are presented in a format appropriate for EPA's use in their analysis.

The present report summarizes information for sites in the St. Louis area. The 23 high volume sampling sites inventoried in the St. Louis area have a wide distribution of exposures ranging from industrial to background. The locations of the sites are shown in Figure 1-1. The data collected for 11 of the sites are presented in Chapter 3. The data collected by Rockwell for the RAMS sites are presented in Chapter 4. These data have been revised to correspond to the format of the other 11 sites. The methodology for performing the microinventories in St. Louis is presented in Chapter 2.


ST. LOUIS
AND VICINITY
0 1 2 3
scale: miles
ST LOUIS
Florissant
Hazelwood
Calverton Park
Berkeley
Ferguson
Bridgeton
Kinloch
Cool Valley
Country Club Hills
Maryland Heights
University City
Creve Coeur
Westwood
Frontenac
Crystal Lake Park
Huntleigh
Town and Country
Des Peres
Kirkwood
Manchester
Webster Groves
Affton
Wilbur Park
Crestwood
Lakeshire
Sappington
Valley Park
Sunset Hills
Fenton
Granite City
Madison
Venice
East St Louis
Fairmont City
Washington Park
Caseyville
Collinsville
Maryville
Glen Carbon
Pontoon Beach
Mitchell
St Thomas
Cahokia
Centreville
Alorton
East Carondelet
Dupo
Belleville
Stallings
Spanish Lake
a
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MISSISSIPPI
ILLINOIS

Figure 1-1. Locations of high volume samplers in the St. Louis AQCR.

LEGEND

Site no.	Site location
PEDCo SITES	
1.	4408 Donovan, St. Louis, Missouri
2.	3500 South Grand, St. Louis, Missouri
3.	3507 Laclede, St. Louis, Missouri
4.	Shreve and I-70, St. Louis, Missouri
5.	23rd and Madison, Granite City, Missouri
6.	2001 East 20th, Granite City, Missouri
7.	15th and Madison, Granite City, Missouri
8.	13 U.S. Route 40, Cahokia Mounds, Missouri
9.	115 A West Main, Collinsville, Missouri
10.	Forest Park, St. Louis, Missouri
11.	River des Peres, St. Louis, Missouri
RAMS SITES	
a.	Bend Road (103)
b.	Seventh and Shenandoah (105)
c.	Missouri Botanical Gardens (106)
d.	Pontoon Road (108)
e.	Washington University (112)
f.	Poag Road and County Highway 19 (115)
g.	Mule Road and Illinois State Highway 3 (118)
h.	Lackland Road (120)
i.*	County Highway 4 (122)
j.*	County Highway 1 (124)
k.	14th and Market
l.	South Broadway and Hurck

* Site location is off the map.

2. METHODOLOGY

MICROINVENTORY PROCEDURES

The microinventory technique described herein was developed over the past four years as part of particulate analyses in several regional areas. The procedures followed are not necessarily technically superior to alternative methods that might be used. However, they have evolved as a result of this past experience and are recommended for succeeding inventories, primarily to maintain consistency in data collection and to minimize the time required in the field.

The survey procedure employed in St. Louis was to ground survey, via automobile, the sampler stations and all probable sources of emissions within a one mile radius of each sampling site. This method enabled the survey team to make the best observation of overall site exposure and to identify the sources with primary impact on the samplers. The one mile radius around each sampler was specified because that is approximately the range to which theoretical treatments (dispersion modeling) show that low level sources will have a significant impact.

Sources of fugitive dust and conventional point and area sources were located on maps during the ground survey and labeled with pertinent data, such as size and boundaries, observed activity and operational characteristics, and estimated emission rates. Two observers independently estimated and agreed upon parameters observed at each site to increase accuracy and completeness.

Presurvey and Preparatory Work

Prior to undertaking the field surveys, a presurvey was performed. This presurvey consisted of a two day visit to St. Louis to gather the materials needed to perform the microinventories and to tour the sites to be inventoried. Point source, area source, air quality, and land use data were obtained from the local air pollution control agency. Traffic volume maps were obtained from the local highway departments.

Three other types of maps were also utilized during the St. Louis microinventories. USGS 7-1/2 minute quadrangle maps were used to locate sampler sites and point sources by UTM coordinates. They were also a convenient size and scale (1" = 2000') for covering the impact area--one mile radius for area sources and a five mile radius for point sources. Aerial photo maps (scale 1" = 200') were practical for marking area source locations and for estimating sizes of land areas. A city street map was used for planning the survey route and in navigating the route.

During the presurvey, each sampling site to be inventoried was visited. Photographs were taken of the sampler location. Monitor height and placement were recorded on an auxiliary data sheet and the sampler was located on the city street map. If any physical interference was observed that could bias the air quality readings, that information was also noted. The site code, street address, and distances of the nearest intersecting streets or localized sources were determined and recorded.

Following this presurvey, the preparatory work needed to perform the field surveys was completed. A one mile radius was drawn on the USGS map for each site, and the major streets were identified thereon. Copies of each of these maps were made for field use. A separate sketch of the 1/4 mile radius area was drawn to scale (1" = 400') to provide even greater detail for the area close to the sampler. An alternative to the 1/4 mile radius sketch would have been to mark information directly on the aerial photo for each site.

Field Work

The actual inventory procedure followed was to begin at the sampler site and survey the 1/4 mile radius area first. The field team then observed each street within the 1/4 mile radius and noted the location of all the pertinent sources on the sketch. Closer inspections of the sources were made as necessary. All important parameters were independently estimated and then agreed upon by the two observers. For area sources, the type, dimensions, and activity rate were recorded. For point sources, the company name, source types, and estimated stack heights were noted. This information was usually recorded on an auxiliary data sheet.

The general condition of paved streets within the area was described on the 1/4 mile sketch by indicating whether streets were curbed or uncurbed. Surface conditions and dirt loadings were described as clean or dirty. Finally, the predominant land uses for the four quadrants were marked. The land use descriptors used are described in detail in a following section.

The above steps were repeated with little modification for the rest of the one mile radius survey area. In many cases, it was possible to inventory this area by driving across alternate streets, in a cross hatch pattern, covering each quadrant completely. In this way, all intersections and sources were observed from a maximum one block distance. Locations of point and area sources were shown on copies of the USGS map or, where available, on aerial photo maps; descriptions of the sources were recorded on the data sheets. Land use was determined both from the ground survey and from information obtained later from land use data.

Topography - The topography of each survey area was briefly characterized. Since the purpose was to account for any increase in concentrations that might occur as a result of pollutant trapping or decrease due to an elevated sampler, the topography description was primarily concerned with sampler placement rather than the surrounding land area. In order to keep this element of the model as simple as possible, only four descriptors were used:

- Elevated receptor
- Valley receptor
- Street canyon receptor
- No special terrain

Measuring Distances of Sources - For purposes of determining the distance from a source to the sampler, the following rules were observed:

Within 200 ft of the monitor - determine distance to ±5 percent during initial visit to the site

From 200 ft to 1/4 mile - scale off the aerial photo map

From 1/4 to 1 mile - scale off either the aerial photo map or the USGS map

Distances to sources within 200 ft of the monitor were recorded during the presurvey. Distances beyond 200 ft were scaled from a map and recorded on the data sheet at a later date following completion of the field work.

Defining Sources - So that all inventories were done with the same degree of detail, it was necessary to establish exactly what sources were to be included. Generally, all fireplace and furnace stacks from residential, commercial, or institutional buildings were accounted for under the fuel combustion area source category and were not inventoried. If a stack emission appeared to involve an industrial process not included in the point source listing, the source was noted if the facility appeared to be operating at the time of the survey.

Defining what constitutes a fugitive dust source was somewhat more difficult; however, sources of fugitive dust would include at least the following activities:

- excavating
- grading
- detonation of explosives
- earth moving
- construction
- demolition
- site preparation
- sand blasting
- mining
- quarrying
- processing of sand, gravel, and rock
- crushing
- screening
- drying
- handling and transporting of materials
- barren storage areas or storage piles
- vehicle movement (reentrainment)
- unpaved roads
- unpaved parking lots
- agricultural tilling
- wind erosion of exposed surfaces
- feed lots
- campgrounds
- fairgrounds
- playgrounds
- athletic fields

Unpaved driveways or unpaved road shoulders were not included unless they were common to all the blocks in a particular segment. However, the presence of these sources often resulted in increased street dirt loadings, and those streets were noted to be dirty.

A significant factor in determining which temporary sources to consider is the time period for which the source is expected to be active. For example, a construction site should be included as a fugitive dust source only if the air quality data are for the period of time the site is active.

A checklist for the procedures discussed above is presented in Table 2-1. This list should facilitate both the planning and the execution of the field surveys so that consistent data collection is achieved for succeeding microinventories.

LAND USE DETERMINATION

Area sources were identified within one mile of each sampling site, but an attempt was made to determine the major land uses within a three mile radius of the site. The rationale for this extension was that the relative impact of land use has not yet been established, so it is reasonable to collect slightly more data than may ultimately be necessary for analysis. The 16 segments within the three mile radius are shown in Figure 2-1. The predominant land use in each segment was categorized based on descriptors listed in Table 2-2. Again, since the input requirements for land use data in the empirical model are uncertain, these descriptors may be modified at a later date.

An initial land use description was obtained for each segment from a land use map. This description was further refined from observations made during the ground survey and from USGS maps. In a few cases, the most appropriate land use designation may be the use which affects air quality most rather than the majority land use. This designation may change as the land area located in the sectors increases. For example, one or more point sources located in sector 1a would be sufficient to classify this sector as general industry. However, in sector 13 more than nine point sources (>25 tons) and a large percentage of industrial land area (>30 percent) would be required for a general industry designation. A similar rational was utilized to choose the most appropriate land use for sectors in which land use was not clearly defined. In summary, the land use descriptor

Table 2-1. CHECKLIST OF STEPS IN MICROINVENTORY

Presurvey and preparatory work

1. Identify sampling sites to be inventoried: record SAROAD code and street address
2. Determine distances to localized sources within 200 feet and sampler height (obtained during site tour)
3. Note possible interferences or biases (obtained during site tour)
4. Take photographs of site and surrounding area (obtained during site tour)
5. Obtain U.S. Geological Survey maps of the area (from either USGS or a local engineering supply store)
6. Obtain land use maps (from local Council of Governments)
7. Obtain traffic data (from local COG, or city or state transportation agency)
8. Obtain recent air quality data (local air pollution control agency)
9. Obtain gridded inventory of area source emissions (local agency)
10. Obtain point source inventory including annual particulate emissions and UTM coordinates (local agency)
11. Obtain aerial photographs (from local COG or city engineering department)
12. Prepare maps for field survey (USGS maps and 1/4 mile sketches)

Field work

1. Describe topography around sampler
2. Survey 1/4 mile area: locate all sources on 1/4 mile sketch, describe on data sheet
3. Note condition of streets
4. Survey remainder of one mile radius area: locate sources on copy of USGS map, describe on same data sheet as above
5. Determine predominant land use by sector

Calculations

1. Allocate area source emissions (from agency inventory) to one mile radius area and to subareas
2. Calculate emissions for discrete fugitive dust sources; assign to appropriate sectors
3. Calculate vehicle-related emissions by sector
4. Prepare table of point source data by increasing distance from site
5. Compare listing with point sources identified in field; add to list any sources missed
6. Add small point sources (less than 25 ton/yr) as an area source category
7. Make final decision on land use description for each sector

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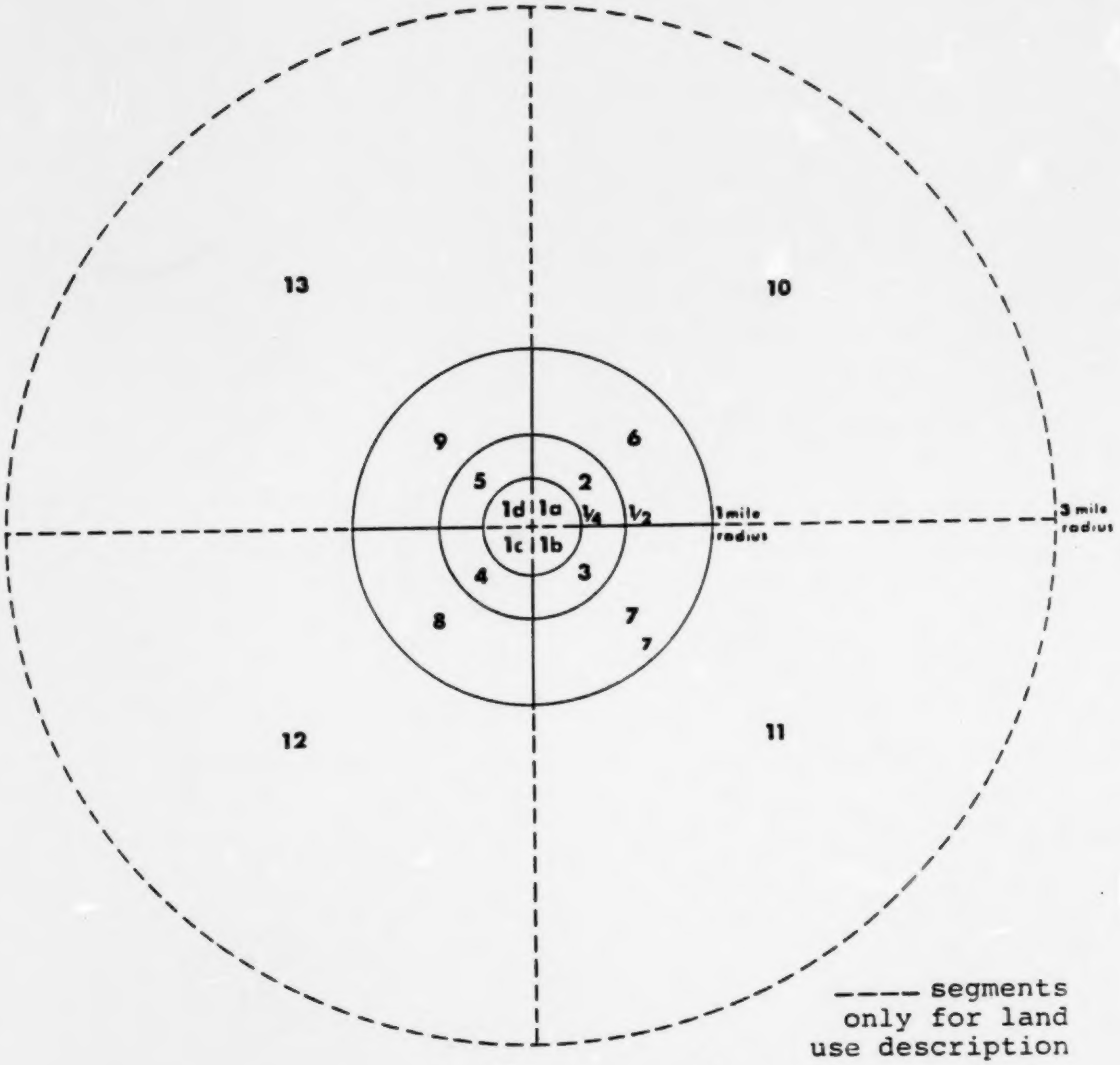

13
10
9
6
5
2
1d
1a
1c
1b
1/4
1/2
1 mile radius
3 mile radius
4
3
8
7
7
12
11
---- segments
only for land
use description

Figure 2-1. Land use and area source sectors used for the survey areas.

Table 2-2. LAND USE DESCRIPTORS

Descriptor	Characteristics
Undeveloped	No significant activity; includes parks, pasture land, lakes, rivers and forests
Agriculture	Land under cultivation at some time during the year
Light residential	Four or less dwelling units/acre
Dense residential	Greater than four dwelling units/acre, includes apartments
Suburban commercial	Retail businesses in strip development or shopping centers
Central commercial	Central business district
Light industry	Metal fabrication, warehousing, trucking, etc., includes few point sources
General industry	Controlled industrial processes includes majority of point sources
Heavy industry	Steel mills, foundries, coking, etc.
Airport	Municipal airport

chosen for each sector was based on available land use and point source data, USGS maps, and field surveys.

COLLECTION OF POINT SOURCE DATA

During the ground survey, an attempt was made to locate every significant particulate point source. Annual particulate emissions from those industrial sources identified were either obtained from the RAMS point source listing[8] or an engineering knowledge of the processes involved. Further, any source listed in the point source file and not identified in the survey was located using UTM coordinates and street addresses.

A table of point sources within five miles of the monitor was compiled for each of the sampler sites. Only those sources with estimated annual particulate emissions of 25 ton/yr or more were considered to be point sources. Smaller sources listed in the point source file were considered only if they were located within one mile of a sampler. The emissions from these sources were combined with either the industrial process or the industrial fuel combustion area source categories. The complete list of greater than 25 ton/yr point sources in the St. Louis area is included in Appendix A.

CALCULATION OF AREA SOURCE EMISSIONS

As discussed previously, an area within a one mile radius was inventoried for each of the 10 sites. This area was divided into nine sectors as shown in Figure 2-1. Based on data obtained from the survey, estimates were made of fugitive dust emissions in each sector. All identified fugitive dust sources within the survey area were recorded on the data sheet with estimates of size, location, and activity. Appropriate emission factors were then applied to each source to calculate estimated annual emissions. These emission factors are discussed in Appendix B. The individual emission factors used for each source category in St. Louis are listed in Table 2-3.

Conventional area source emissions not accounted for in the survey were included in order to determine total area source particulate emissions by sector. The categories of conventional area sources considered included emissions from fuel combustion, incinerators, locomotives, vessels, and small point sources. Emissions from these sources were obtained from the gridded inventory of area source emissions for St. Louis.[9] The emissions were summarized for the St. Louis area by source category in one kilometer grids. The microinventory areas were superimposed on a map of the gridded inventory area; emissions were then apportioned to the microinventory areas from the grids on the basis of land area. These area source emissions were reapportioned to the nine sectors of the one mile radius area on the basis of land area: sector 1, 6.0 percent; sectors 2-5, 4.7 percent each; sectors 6-9, 18.8 percent each. It was not practical with the available data to determine exact emissions by sector. Although this appears to negate the effect of sectoring in St. Louis, the conventional area source emissions are generally much less than those from fugitive dust or vehicle-related sources.

Emissions for two other sources, vehicle exhaust and reentrained dust from streets, were calculated for each sector based on the vehicle miles traveled (VMT) in each sector. These VMT data were calculated from traffic volume maps.[10,11,12] Annual traffic volumes were obtained by multiplying the daily VMT by 325 if the daily traffic volumes were weekday counts, otherwise a factor of 365 was used.

Summaries were prepared for the RAMS sites in a manner similar to that described above. Conventional area source

Table 2-3. EMISSION FACTORS FOR MICROINVENTORIES

Source category	Emission factor	Units
Railroad yards	0.1	ton/acre/yr
Reentrained dust		
clean paved streets	3.1	gm/VMT
commercial streets	13.6	gm/VMT
exhaust	0.6	gm/VMT
Unpaved roads	2.7	lb/VMT
Cleared or exposed areas	0.06	ton/acre/yr
Construction	0.35	ton/acre/mo
Agriculture	0.026	ton/acre/yr
Aggregate storage	2.4	ton/acre/yr
Unpaved parking lots	1.4	lb/VMT
Unpaved storage areas	0.2	ton/acre/yr
Grain elevators	1.8	ton/silo/yr
Incinerators	7.0	lb/ton of refuse

and point source emissions were calculated exactly as described above. Fugitive dust emissions were calculated using the emission factors presented in Table 2-3 and activity data obtained from the Regional Air Pollution Study.[6] Land use was also determined from information presented in the report.

3. SUMMARIES FOR PEDCo SITES

A six page summary was compiled for each of the 11 particulate sampler sites inventoried in the St. Louis AQCR. These site data summaries are presented in this chapter.

The first page of the summary is a complete description of the individual site including the SAROAD code, the street address, the location and height of the monitor, the land use within a three mile radius, the topography in the vicinity of the site, localized sources within 200 ft of the monitor, and air quality data for a four year period.

The sampler site locations and surrounding one mile radius survey areas are illustrated on the second page. The third page of each summary is a more detailed map showing sources within 1/4 mile of the sampler.

Two photographs illustrating the sampler, one viewed in the direction where the greatest potential for localized pollution influence existed, are presented on the fourth page of each summary.

A listing of all the point sources identified in the St. Louis AQCR is included in this report (Appendix A). The listing is limited to those sources emitting greater than 25 ton/yr. Each source is designated by number. The fifth page of the summaries lists any of these point sources located within a five mile radius of the sampler. Those sources within one mile are also located on the map of the survey area.

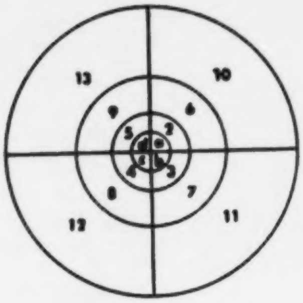
Any source emitting less than 25 ton/yr and within one mile of the sampler is included under the industrial process area source category or allocated to the appropriate area source combustion category.

The sixth page summarizes the area sources for a one mile radius about each sampler site.

DESCRIPTION OF SITE

SAROAD code - 26 4280 010

Location - 4408 Donovan



Monitor height - 35 ft, on roof of
three story building

Land use, by sector -

1a suburban commercial
1b dense residential
1c dense residential
1d dense residential

2 dense residential
3 dense residential
4 dense residential
5 dense residential

6 dense residential
7 dense residential
8 light residential
9 dense residential

10 general industry
11 dense residential
12 dense residential
13 dense residential

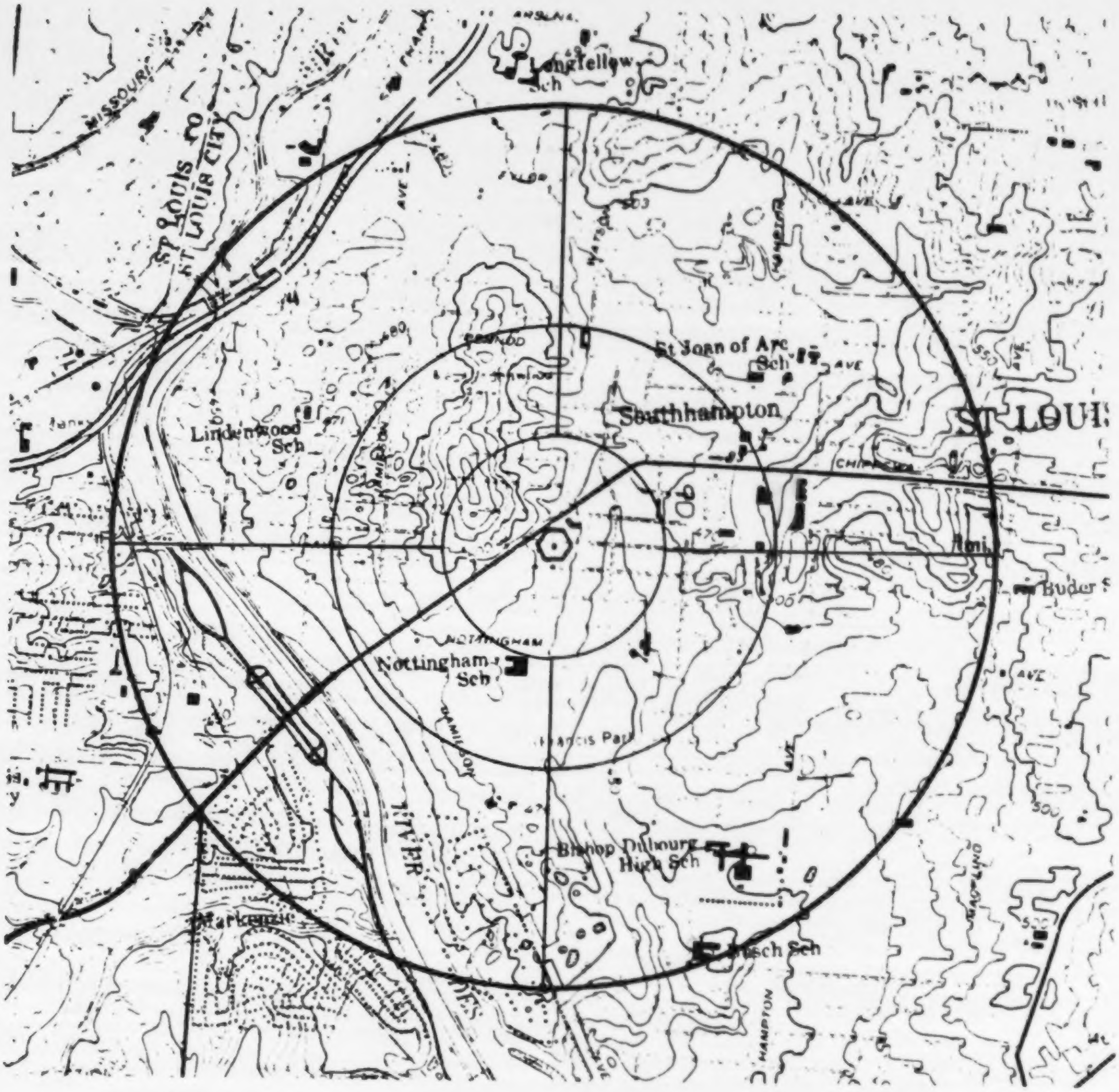
Topography - no special terrain

Localized sources, within 200 ft of monitor -

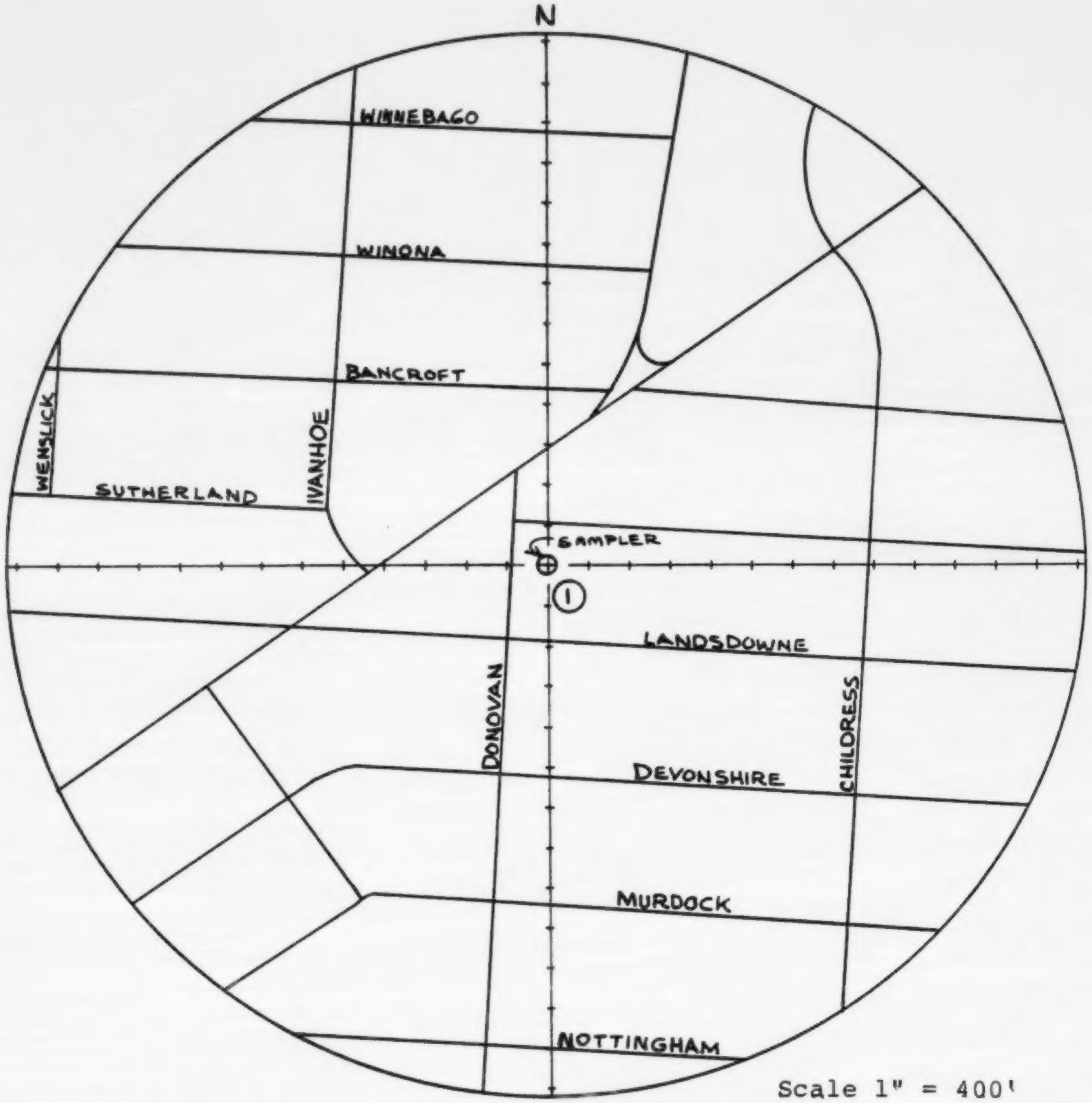
Source	Distance	Description
Sutherland	90 ft	200 ADT, clean, curbed
Donovan	55 ft	500 ADT, clean, curbed
Landsdowne	190 ft	2800 ADT, clean, curbed
Grocery incinerator	80 ft	200 lb of refuse burned/day

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	70	This information was not available
1975	63	
1974	61	


Longfellow Sch
St Louis Co
St Louis City
Missouri
St Joan of Arc Sch
Southhampton
St Louis
Lindenwood Sch
Nottingham Sch
Nottingham
Buder
Francis Park
River
Bishop Dubourg High Sch
Busch Sch
Mackenzie
Hampton
Chippewa

One mile radius around 4408 Donovan site.


N
WINNEBAGO
WINONA
BANCROFT
WENSLICK
IVANHOE
SUTHERLAND
SAMPLER
①
LANDSDOWNE
DONOVAN
CHILDRESS
DEVONSHIRE
MURDOCK
NOTTINGHAM

Scale 1" = 400'

1. Grocery incinerator, 200 lb refuse/day

One-quarter mile radius around 4408 Donovan site.

Viewed to the south.

Viewed to the west.

Sampler at 4408 Donovan.

POINT SOURCE SUMMARY

Site: 4408 Donovan

Plant number	Emission level, t/yr	Distance from site, mi	Compass direction,°
11	396	3.7	35
12	244	4.0	355
8	160	4.4	100
14	114	4.5	195
15	402	4.7	150
10	62	4.9	85

AREA SOURCE SUMMARY

Site: 4408 Donovan

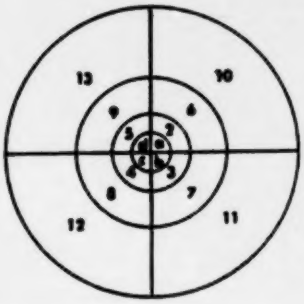
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		0.1	0.1	0.1	0.1	0.1	1.1	0.4	0.3	0.4	2.7
Res/Com/Ind fuel		3.7	3.2	4.8	0.9	1.1	11.0	14.5	2.9	5.3	47.4
Incinerators		0.1					0.5				0.6
Rail/Air/Vessel		0.2				0.1	0.2		0.1	2.0	2.6
Auto exhaust	75.9×10^6 VMT	5.0	2.1	1.1	2.6	1.5	7.2	5.0	8.4	17.3	50.2
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards	10.4 ac									1.0	1.0
Clean streets	75.9×10^6 VMT	25.7	10.8	5.5	13.5	7.7	37.2	26.1	43.5	89.5	259.5
Comm streets											
Unpaved roads											
Cleared areas	3.0 ac					0.2					0.2
Construction											
Agriculture											
Storage areas											
Unpaved pkg lots	5.2 ac									0.3	0.3

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	9.1	17.8	76.6	103.5
IND PROCESSES				
FUGITIVE DUST	25.7	37.7	197.6	261.0
Total	34.8	55.5	274.2	364.5

DESCRIPTION OF SITE

SAROAD code - 26 4280 025

Location - 3500 South Grand



Monitor height - 35 ft, on roof of three story building

Land use, by sector -

1a suburban commercial
1b dense residential
1c suburban commercial
1d dense residential

2 dense residential
3 dense residential
4 dense residential
5 dense residential

6 dense residential
7 dense residential
8 light industry
9 dense residential

10 general industry
11 light industry
12 dense residential
13 general industry

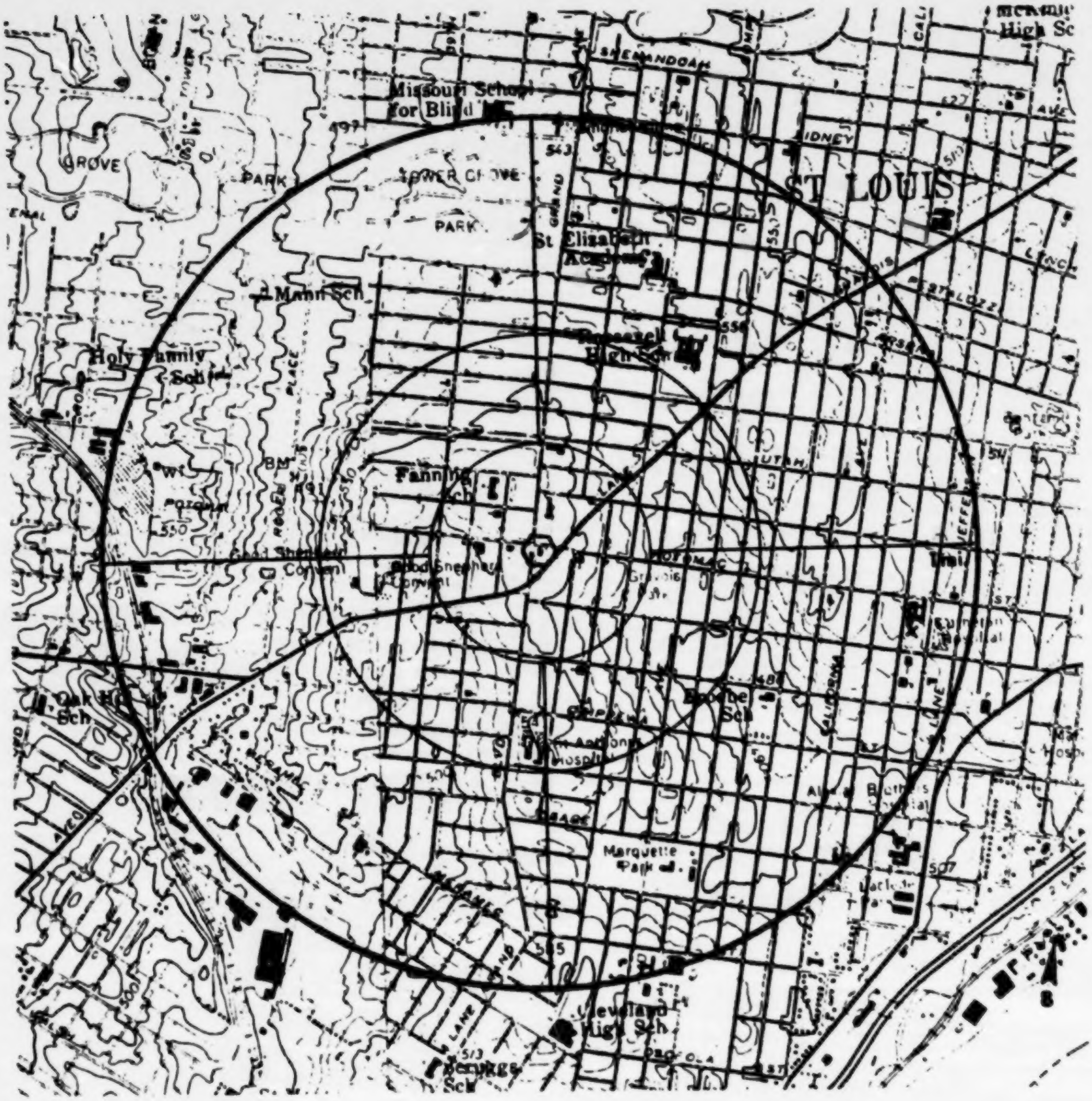
Topography - no special terrain

Localized sources, within 200 ft of monitor -

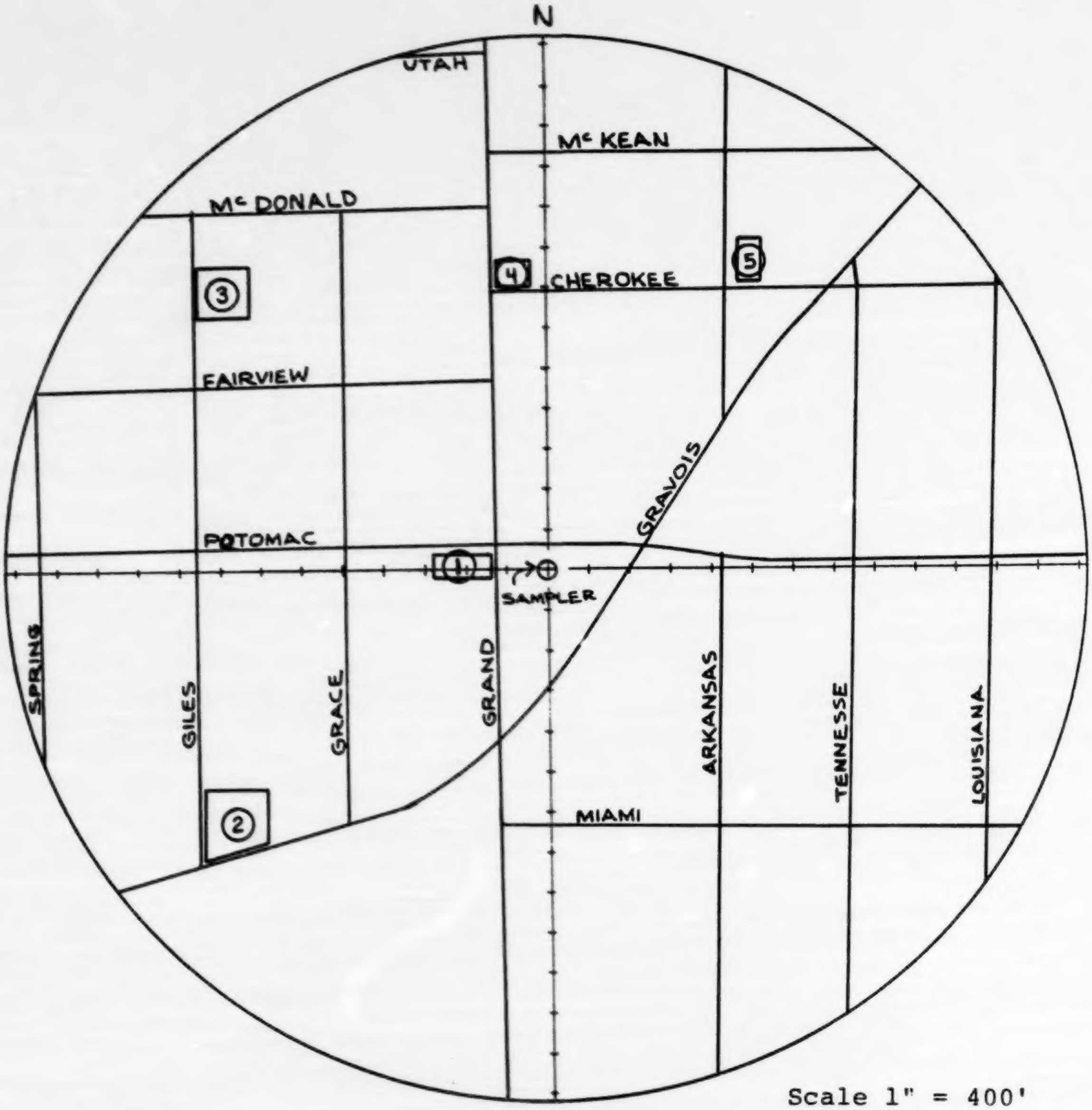
Source	Distance	Description
Potomac Street	28 ft	2800 ADT, clean, curbed
Grand	60 ft	17,250 ADT, clean, curbed
Gravois	150 ft	19,900 ADT, clean, curbed
Parking lot	150 ft	unpaved, 0.2 acre, 15 cars

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	68	This information was not available
1975	71	
1974	80	


Missouri School for Blind
SHENANDOAH
GROVE
PARK
TOWER GROVE
PARK
ST LOUIS
St Elisabeth Academy
Mann Sch
Holy Family Sch
Roosevelt High Sch
UTAH
Fanning Sch
POTOMAC
Good Shepherd Convent
Shepherd Convent
Oak Hill Sch
Boone Sch
Anthony Hosp
Alexian Brothers Hospital
Marquette Park
Cleveland High Sch
Scruggs Sch
Laclede Park

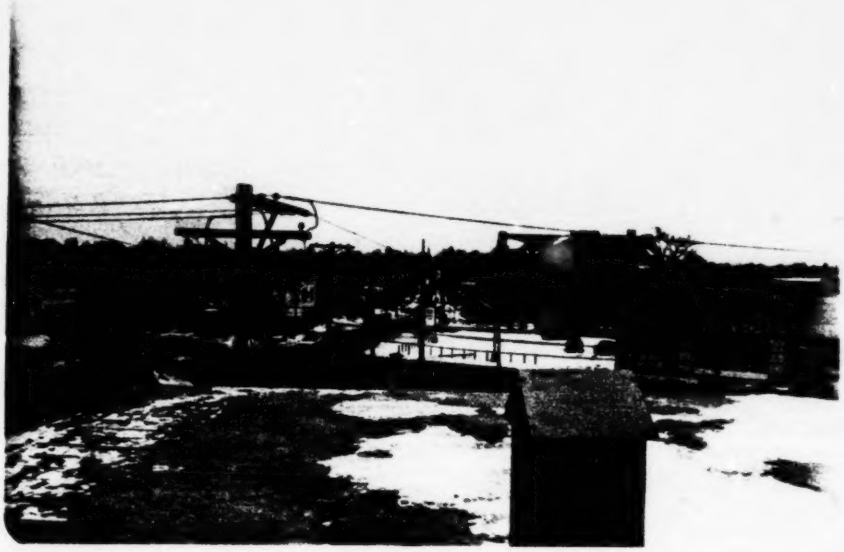
One mile radius around 3500 South Grand site.


N
UTAH
Mc KEAN
Mc DONALD
CHEROKEE
FAIRVIEW
GRAVOIS
POTOMAC
SAMPLER
SPRING
GILES
GRACE
GRAND
ARKANSAS
TENNESSE
LOUISIANA
MIAMI
1
2
3
4
5

Scale 1" = 400'

1. Unpaved lot, 0.2 acre, 15 cars
2. Construction, 0.9 acre, 6 mos
3. Construction, 0.6 acre, 6 mos
4. Unpaved lot, 0.2 acre, 20 cars
5. Aggregate storage, 0.1 acre

One-quarter mile radius around 3500 South Grand site.



Viewed to the east.

Viewed to the north-northwest.

Sampler at 3500 South Grand.

POINT SOURCE SUMMARY

Site: 3500 South Grand

Plant number	Emission level, t/yr	Distance from site, mi	Compass direction,°
8	160	1.5	130
10	62	1.7	80
9	231	2.6	70
11	396	3.0	340
9	195	4.1	85
13	77	4.4	55
15	402	4.5	190
16	144	4.8	135

AREA SOURCE SUMMARY

Site: 3500 South Grand

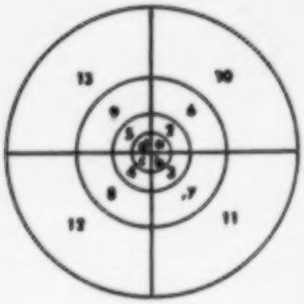
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		0.1	0.1	0.1	0.1	0.1	0.4	11.4	4.3	0.4	17.0
Res/Com/Ind fuel		6.7	2.4	7.4	5.1	2.8	16.8	15.1	12.4	35.3	104.0
Incinerators							0.2	0.2	0.4	0.4	1.2
Rail/Air/Vessel										0.1	0.1
Auto exhaust	56.8x10^6VMT	6.1	2.7	1.3	4.3	0.9	8.3	2.8	8.8	2.3	37.5
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards											
Clean streets	56.8x10^6VMT	31.7	14.1	6.7	22.2	4.4	42.9	14.7	45.3	12.0	194.0
Comm streets											
Unpaved roads											
Cleared areas	5.1 ac							0.2	0.1		0.3
Construction	1.6 ac	3.4									3.4
Agriculture											
Storage areas											
Unpaved pkg lots	0.6 ac	0.2							0.6		0.8

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	12.9	27.3	119.6	159.8
IND PROCESSES				
FUGITIVE DUST	35.3	47.4	115.8	198.5
Total	48.2	74.7	235.4	358.3

DESCRIPTION OF SITE

SAROAD code - 26 4280 032

Location - 3507 Laclede



Monitor height - 40 ft, on roof of three story building

Land use, by sector -

1a central commercial
1b dense residential
1c light industry
1d dense residential

2 dense residential
3 undeveloped
4 general industry
5 suburban commercial

6 general industry
7 general industry
8 dense residential
9 dense residential

10 dense residential
11 general industry
12 general industry
13 dense residential

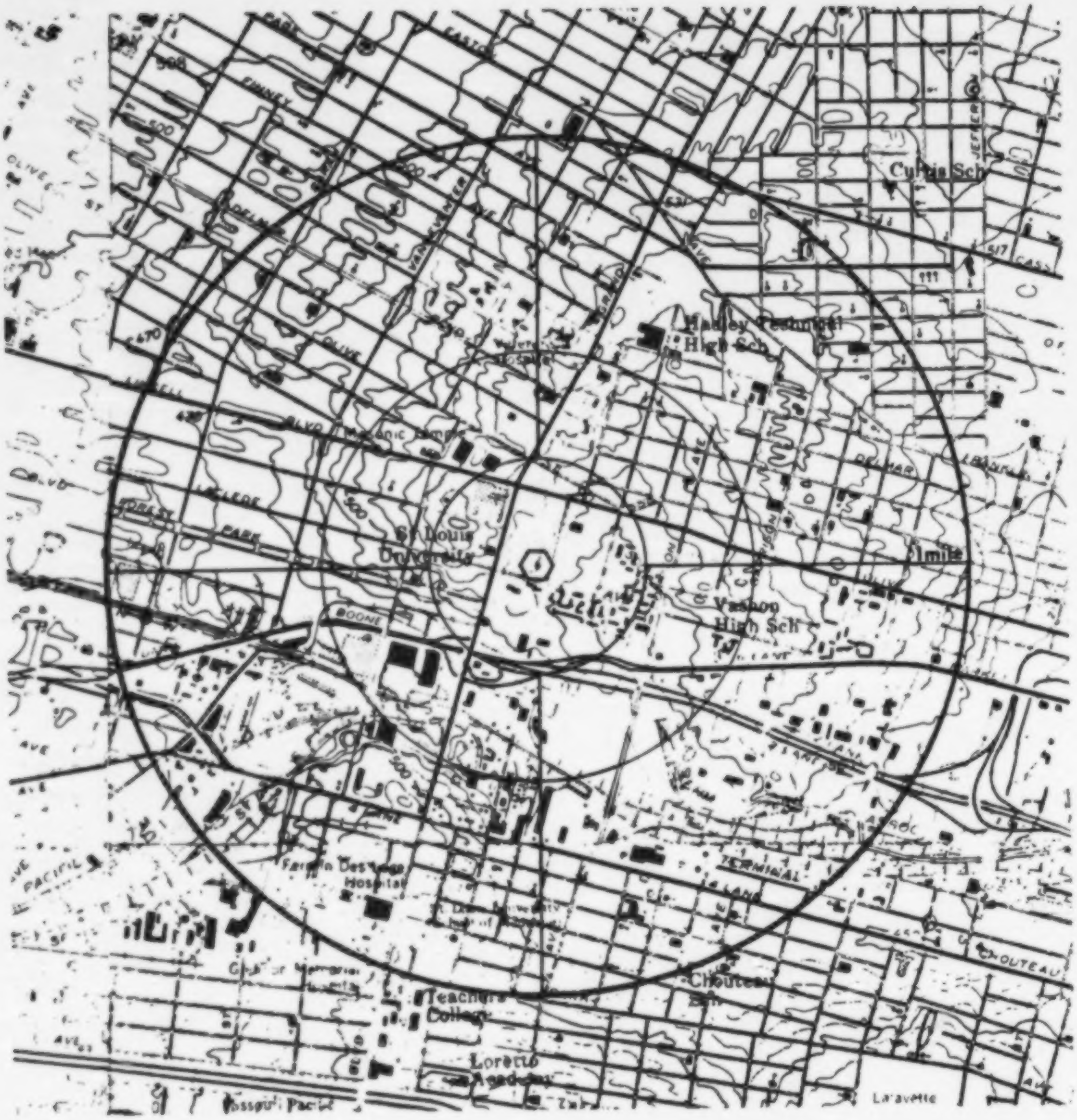
Topography - no special terrain

Localized sources, within 200 ft of monitor -

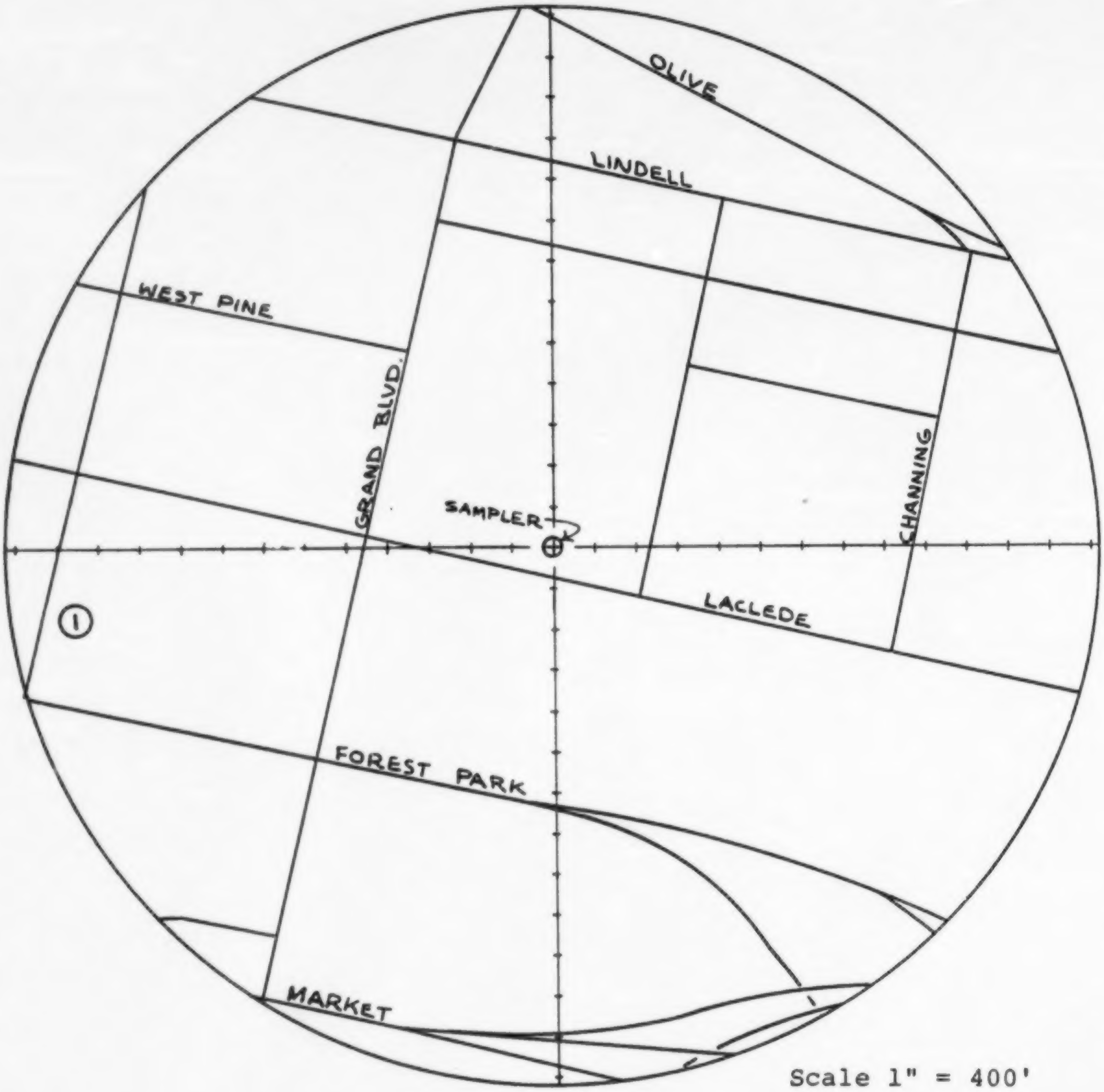
Source	Distance	Description
Laclede	88 ft	6600 ADT, clean, curbed

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	66	This information was not available
1975	63	
1974	68	


St Louis University
Hadley Technical High Sch
Vashon High Sch
Curtis Sch
1mile
Chouteau
Teachers College
Loretto Academy
Firmin Desloge Hospital
OLIVE
LACLEDE
FOREST PARK
BOONE
DELMAR
LAWTON
EASTON
FINNEY
PACIFIC
TERMINAL
CHOUTEAU
JEFFERSON
CASS
Missouri Pacific
Lafayette

One mile radius around 3507 Laclede site.


N
OLIVE
LINDELL
WEST PINE
GRAND BLVD.
SAMPLER
CHANNING
LACLEDE
①
FOREST PARK
MARKET

Scale 1" = 400'

1. Incinerator, 800 lb/day

One-quarter mile radius around 3507 Laclede site.

Viewed to the east.

Viewed to the west.

Sampler at 3507 Laclede.

POINT SOURCE SUMMARY

Site: 3507 Laclede

Plant number	Emission level, t/yr	Distance from site, mi	Compass direction,°
11	396	1.6	270
9	231	2.8	135
10	62	2.9	155
6	53	2.9	45
5	372	3.1	50
13	77	3.2	100
4	160	3.3	35
3	1,758	3.6	55
8	160	3.9	170
12	244	4.1	280
9	195	4.4	125

AREA SOURCE SUMMARY

Site: 3507 Laclede

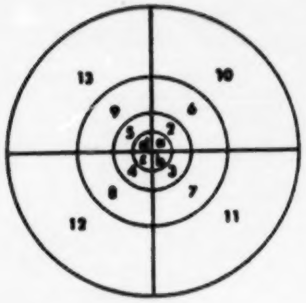
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		1.1	0.1	0.2	1.3	0.6	1.8	0.7	4.7	2.8	13.3
Res/Com/Ind fuel		9.0	9.3	3.0	10.5	22.3	38.3	35.0	34.8	72.5	234.7
Incinerators		0.4					0.4	0.6	0.4		1.8
Rail/Air/Vessel		0.3		0.4	0.4	0.2		6.8	0.7	0.1	8.9
Auto exhaust	118.1x10^6VMT	7.8	3.6	6.5	8.6	2.6	7.7	12.2	20.2	8.8	78.0
AREA SOURCE INDUS PROCESSES:											
Ind processes					1.1		0.6		3.0	6.9	11.6
FUGITIVE DUST:											
Railroad yards	78 ac				0.8			4.3	2.6		7.7
Clean streets	117.0x10^6VMT	40.6	18.8	33.6	42.4	13.6	39.8	63.1	104.5	43.7	400.1
Comm streets	1.1x10^6VMT				8.1					8.3	16.4
Unpaved roads											
Cleared areas	6.7 ac						0.2		0.2		0.4
Construction	4.9 ac						2.9	2.4	1.2		6.5
Agriculture											
Storage areas	14.0 ac							2.8			2.8
Unpaved pkg lots	3.5 ac				0.4				5.0		5.4

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	18.6	69.6	248.5	336.7
IND PROCESSES		1.1	10.5	11.6
FUGITIVE DUST	40.6	117.7	281.0	439.3
Total	59.2	188.4	540.0	787.6

DESCRIPTION OF SITE

SAROAD code - 26 4280 061

Location - Shreve and I-70



Monitor height - 13 ft, on roof of trailer

Land use, by sector -

1a	light industry
1b	light residential
1c	dense residential
1d	light industry
2	undeveloped
3	dense residential
4	dense residential
5	residential
6	undeveloped
7	dense residential
8	general industry
9	dense residential
10	light industry
11	dense residential
12	dense residential
13	dense residential

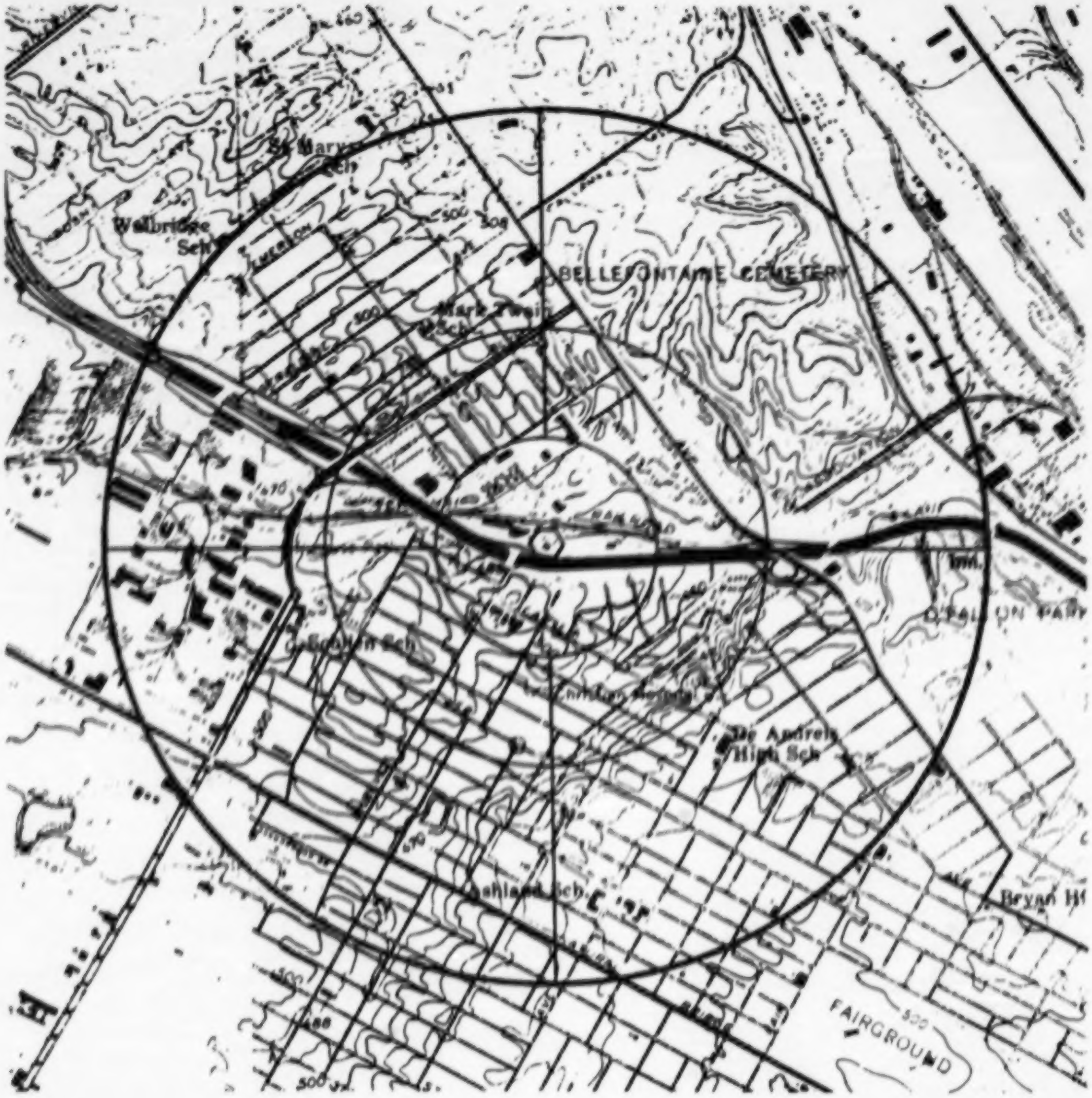
Topography - no special terrain

Localized sources, within 200 ft of monitor -

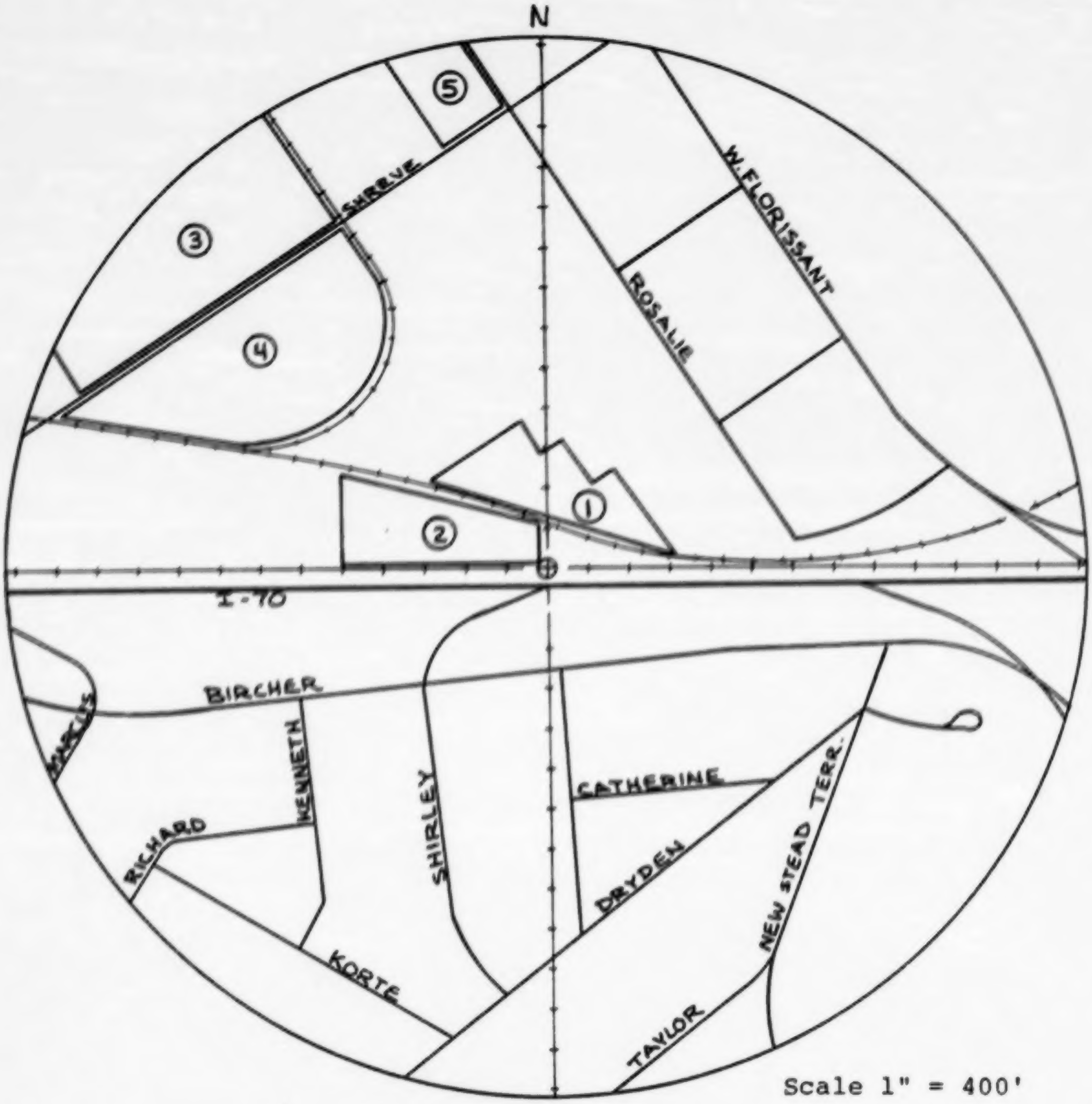
Source	Distance	Description
I-70	50 ft	94,400 ADT, clean, curbed
Storage area	50 ft	unpaved, 1.4 acres
Parking lot	180 ft	unpaved, 1.7 acres, 40 cars

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	96	This information was not available
1975	105	
1974	111	


St Marys Sch
Wallbridge Sch
BELLEFONTAINE CEMETERY
Mark Twain Sch
O'FALLON PARK
St Andrews High Sch
Ashland Sch
Bryan Hill
FAIRGROUND
500

One mile radius around Shreve and I-70 site.


N
⑤
SHREVE
③
④
W. FLORISSANT
ROSALIE
①
②
I-70
BIRCHER
KENNETH
SHIRLEY
CATHERINE
RICHARD
DRYDEN
NEW STEAD TERR.
KORTE
TAYLOR

Scale 1" = 400'

1. Unpaved storage/loading, 1.7 acres, 40 trucks
2. Unpaved storage, 1.4 acres
3. Unpaved storage/loading, 3.4 acres, 20 trucks
4. Unpaved storage, 4.6 acres
5. Cleared area, 1.0 acre

One-quarter mile radius around Shreve and I-70 site.

Viewed to the north.

Viewed to the west.

Sampler at Shreve and I-70.

POINT SOURCE SUMMARY

Site: Shreve and I-70

Plant number	Emission level, t/yr	Distance from site, mi	Compass direction,°
4	160	2.1	105
6	53	2.6	120
5	372	2.9	120
3	1,758	3.2	110
11	396	3.6	200
7	6,384	3.7	10
2	90	4.2	70
12	244	4.6	240
1	560	4.9	80
13	77	5.0	140

AREA SOURCE SUMMARY

Site: Shreve and I-70

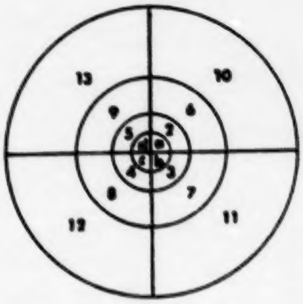
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		0.9	0.1	0.6	0.5	0.1	4.2	0.7	7.9	3.3	18.3
Res/Com/Ind fuel		28.8	20.1	4.9	26.8	28.8	53.2	25.8	25.1	51.6	265.1
Incinerators								0.1			0.1
Rail/Air/Vessel		0.2		0.2				2.2	0.7		3.3
Auto exhaust	110.7x10^{6}VMT	12.5	3.5	5.3	0.3	4.8	15.6	3.3	10.6	17.4	73.3
AREA SOURCE INDUS PROCESSES:											
Ind processes		5.0							6.0	20.0	31.0
FUGITIVE DUST:											
Railroad yards											
Clean streets	110.7x10^{6}VMT	64.5	18.0	27.5	1.4	24.8	80.8	16.8	54.7	89.7	378.2
Comm streets											
Unpaved roads	1850 VMT						3.5				3.5
Cleared areas	1.0 ac	0.1									0.1
Construction											
Agriculture											
Storage areas	10.5 ac	2.1									2.1
Unpaved pkg lots	1.4 lb/VMT	1.1						0.1		1.2	2.4

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	42.4	96.0	221.7	360.1
IND PROCESSES	5.0		26.0	31.0
FUGITIVE DUST	67.8	71.7	246.8	386.3
Total	115.2	167.7	494.5	777.4

DESCRIPTION OF SITE

SAROAD code - 14 2960 007

Location - 23rd and Madison



Monitor height - 42 ft, on roof of fire station

Land use, by sector -

1a suburban commercial
1b dense residential
1c suburban commercial
1d dense residential

2 suburban commercial
3 heavy industry
4 suburban commercial
5 dense residential

6 dense residential
7 heavy industry
8 heavy industry
9 dense residential

10 dense residential
11 undeveloped
12 light industry
13 undeveloped

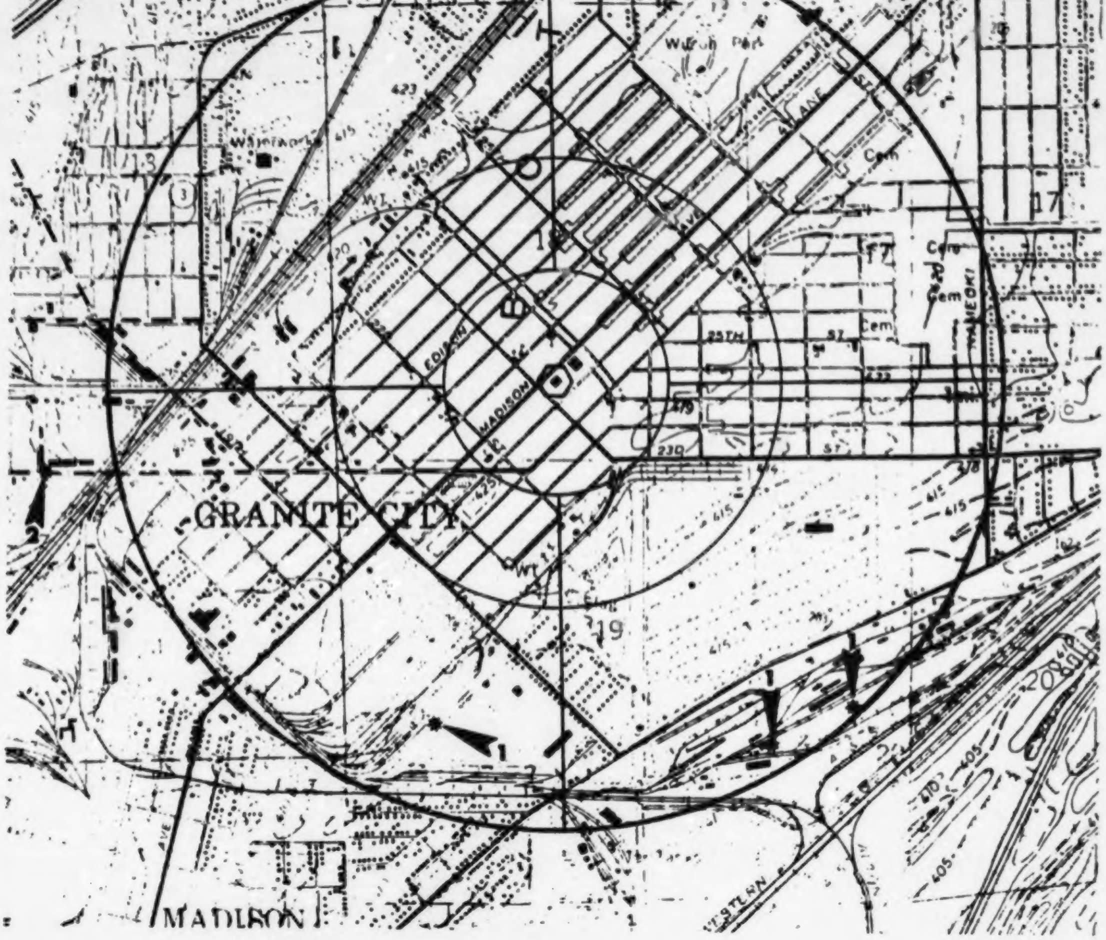
Topography - no special terrain

Localized sources, within 200 ft of monitor -

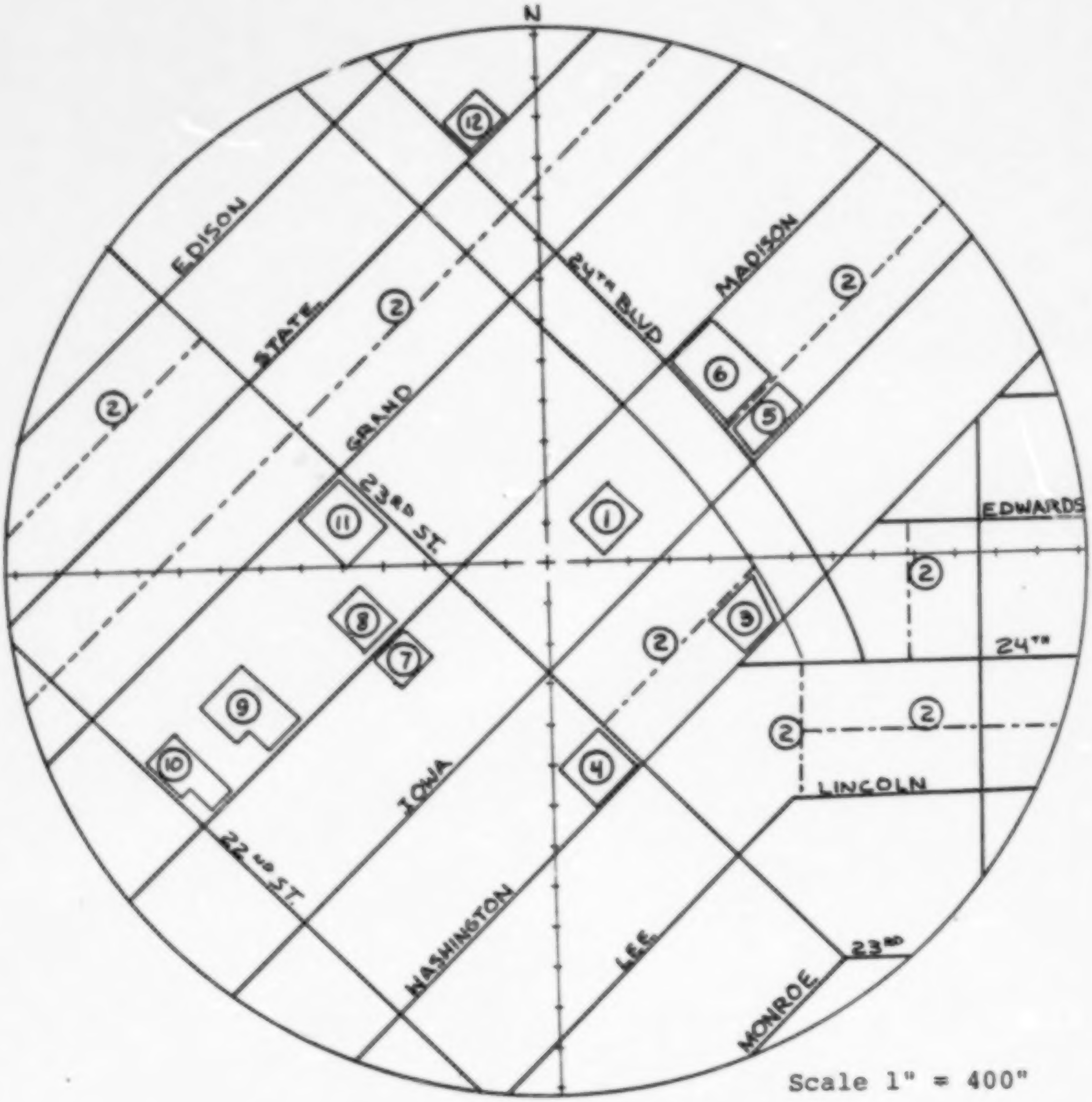
Source	Distance	Description
Madison Street	140 ft	19,800 ADT, dirty, curbed
23rd Street	180 ft	800 ADT, dirty, curbed
Iowa Street	190 ft	1400 ADT, dirty, curbed

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	122	This information was not available
1975	105	
1974	93	


GRANITE CITY
MADISON
Wilson Park
Cem
COUCH
MADISON
25TH
17
18
19
1
2
3

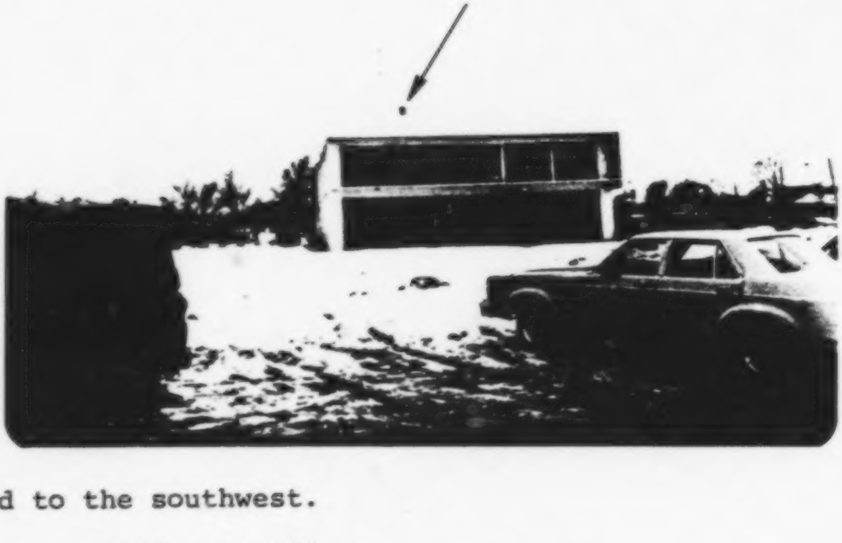
One mile radius around 23rd and Madison site.


N
EDISON
STATE
GRAND
23RD ST.
24TH BLVD
MADISON
EDWARDS
24TH
LINCOLN
IOWA
22ND ST.
WASHINGTON
LEE
MONROE
23RD
1
2
3
4
5
6
7
8
9
10
11
12
Scale 1" = 400"

1. Construction, 0.2 acre
2. Unpaved alleys, 5750 ft. 10 cars
3. Unpaved lot, 0.1 acre, 20 cars
4. Unpaved lot, 0.2 acre, 50 cars
5. Unpaved storage, 0.1 acre
6. Unpaved storage, 0.9 acre
7. Unpaved lot, 0.2 acre, 30 cars
8. Unpaved lot, 0.2 acre, 30 cars
9. Unpaved lot, 0.2 acre, 30 cars
10. Unpaved lot, 0.1 acre, 20 cars
11. Unpaved lot, 0.7 acre, 50 cars
12. Unpaved lot, 0.1 acre, 10 cars

One-quarter mile radius around 23rd and Madison site.

Viewed to the northeast.



Viewed to the southwest.

Sampler at 23rd and Madison.

POINT SOURCE SUMMARY

Site: 23rd and Madison

Plant number	Emission level, t/yr	Distance from site, mi	Compass direction,°
1	560	.73	200
1	1,960	.92	150
1	280	1.0	140
2	90	1.2	260
3	1,758	3.5	215
8	160	3.7	235
5	372	3.9	220
6	53	4.1	225
7	6,384	4.8	295

AREA SOURCE SUMMARY

Site: 23rd and Madison

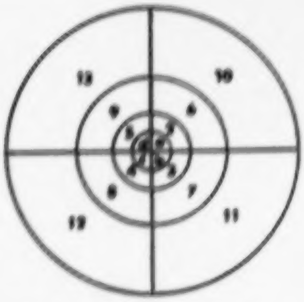
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel							0.2	0.2	2.5	1.0	3.9
Res/Com/Ind fuel		2.2	1.6	1.9	1.7	0.9	6.3	5.8	5.2	3.4	29.0
Incinerators											
Rail/Air/Vessel			0.2	0.1		0.2	0.2	0.7	1.7	0.9	4.0
Auto exhaust	37.9x10^6 VMT	3.5	1.5	0.1	2.7	0.4	4.3	5.6	5.4	1.6	25.1
AREA SOURCE											
INDUS PROCESSES:											
Ind processes								9.6	5.2	11.5	26.3
FUGITIVE DUST:											
Railroad yards	48 ac								4.8		4.8
Clean streets	22.7x10^6 VMT	17.9	7.5			2.1	22.3		27.9	36.8	114.5
Comm streets	15.1x10^6 VMT			3.0	60.2			126.8			190.0
Unpaved roads	217,700 VMT	2.8	0.7					175.0	115.4		293.9
Cleared areas											
Construction	11.9 ac	0.5	0.8		13.9						15.2
Agriculture	46.1 ac							1.2			1.2
Storage areas	248 ac	0.2		9.1				36.5	2.4	1.5	49.7
Unpaved pkg lots	32 ac	1.4			16.0			41.5	30.7		89.6

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	5.7	11.3	45.0	62.0
IND PROCESSES			26.3	26.3
FUGITIVE DUST	22.8	113.3	622.8	758.9
Total	28.5	124.6	694.1	847.2

DESCRIPTION OF SITE

SAROAD code - 14 2960 009

Location - 2001 East 20th



Monitor height - 16 ft

Land use, by sector -

1a	heavy industry
1b	heavy industry
1c	heavy industry
1d	heavy industry
2	heavy industry
3	heavy industry
4	dense residential
5	light industry
6	suburban commercial
7	heavy industry
8	dense residential
9	light industry
10	dense residential
11	undeveloped
12	light industry
13	undeveloped

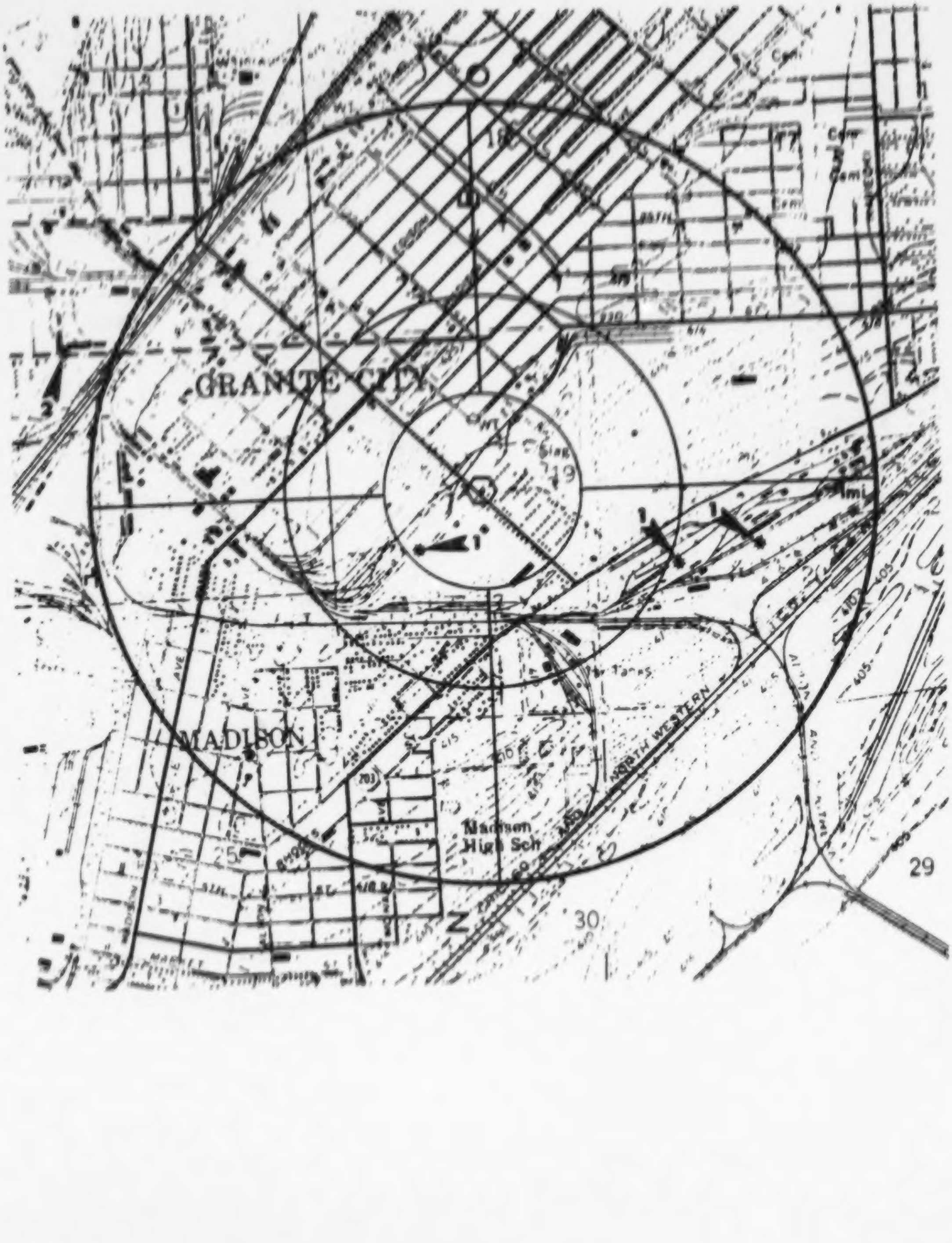
Topography - no special terrain

Localized sources, within 200 ft of monitor -

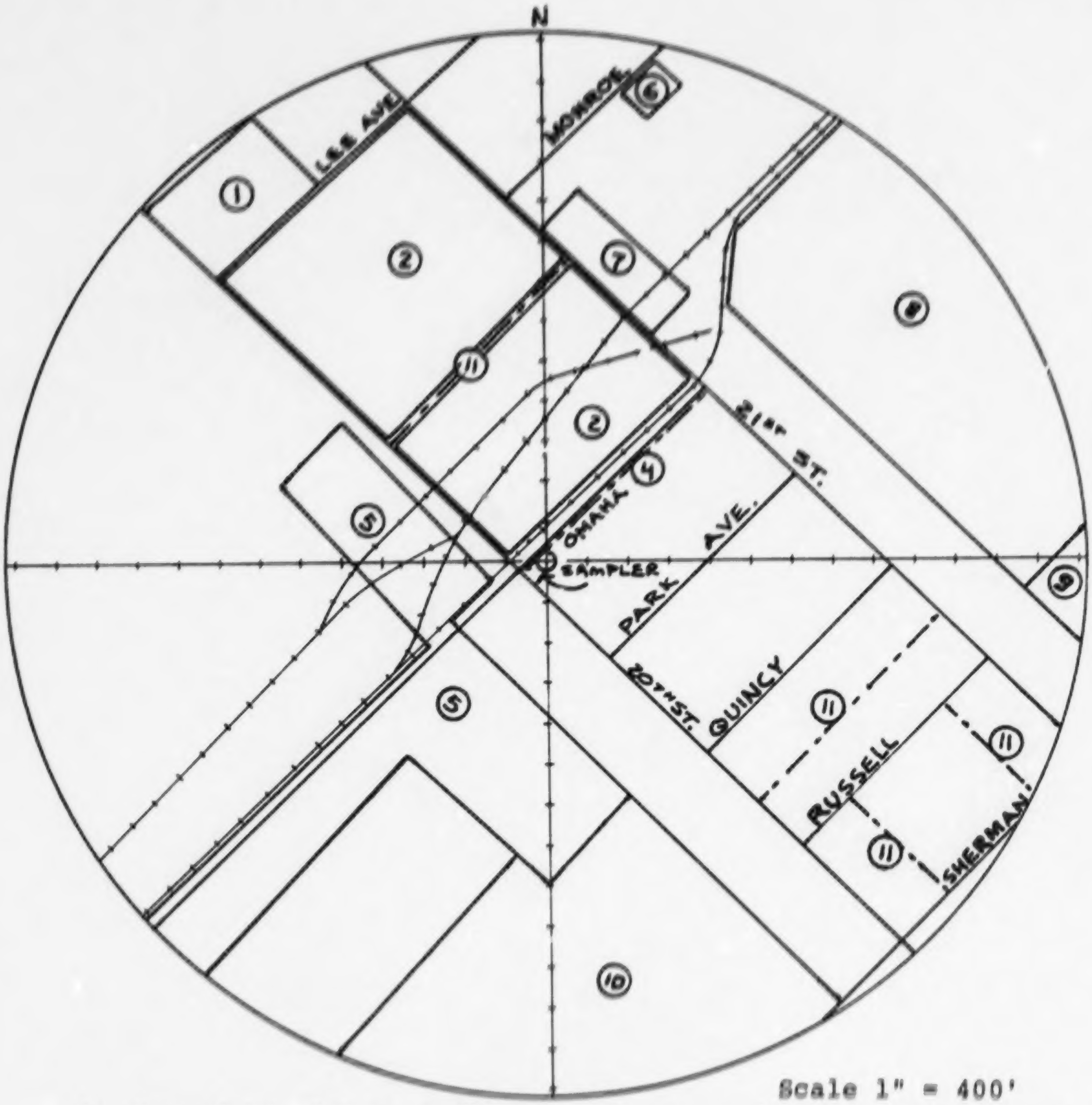
Source	Distance	Description
Omaha Street	25 ft	200 ADT, dirty, uncurbed
20th Street	28 ft	12,300 ADT, dirty, uncurbed
Railroad tracks	75 ft	locomotive emissions
Parking lot	55 ft	unpaved, 13.7 acres, 1800 cars

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	205	This information was not available
1975	157	
1974	158	


GRANITE CITY
MADISON
Madison High Sch
NORTH WESTERN
18
17
19
25
29
30

One mile radius around 2001 East 20th site.


N
LEE AVE
MONROE
⑥
①
②
⑦
⑧
⑪
②
21st ST.
④
OMAHA
⑤
PARK AVE.
SAMPLER
⑨
20th ST.
QUINCY
⑤
⑪
RUSSELL
⑪
⑪
SHERMAN
⑩

Scale 1" = 400'

1. Unpaved lot, 2.0 acres, 200 cars
2. Unpaved lot, 13.7 acres, 1800 cars
3. Unpaved haul road, 700 ft, 500 trucks
4. Unpaved shoulder pkg, 0.1 acre, 35 cars
5. Unpaved storage/roads, 10.9 acres, 500 veh
6. Unpaved lot, 0.5 acre, 25 cars
7. Unpaved storage/roads, 2.3 acres, 200 veh
8. Unpaved storage, 12.4 acres
9. Unpaved storage, 0.9 acre
10. Unpaved storage, 12.8 acres
11. Unpaved alleys, 1350 ft, 10 cars

One-quarter mile radius around 2001 East 20th site.

Viewed to the southwest.

Viewed to the southeast.

Sampler at 2001 East 20th.

POINT SOURCE SUMMARY

Site: 2001 East 20th

Plant number	Emission level, t/yr	Distance from site, mi	Compass direction,°
1	560	.20	250
1	1,960	.53	110
1	280	.71	105
2	90	1.2	290
3	1,758	3.0	220
4	160	3.4	240
5	372	3.4	225
6	53	3.6	230
7	6,384	5.0	300

AREA SOURCE SUMMARY

Site: 2001 East 20th

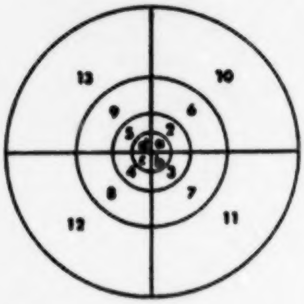
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel				0.1	0.2	0.1	0.3	0.5	1.8	3.0	6.0
Res/Com/Ind fuel		1.2	1.6	1.2	0.7	1.4	6.6	2.7	4.4	5.9	25.7
Incinerators											
Rail/Air/Vessel		0.2	0.2	0.3	0.3	0.2	0.6	2.2	2.6	1.9	8.5
Auto exhaust	27.8x10^{6}VMT	1.5		2.7	0.6	3.3	2.7	0.7	3.8	3.0	18.3
AREA SOURCE INDUS PROCESSES:											
Ind processes				15.6			4.0			20.7	40.3
FUGITIVE DUST:											
Railroad yards	48 ac				4.8						4.8
Clean streets	18.6x10^{6}VMT				3.4	17.0	13.9		13.8	15.7	63.8
Comm streets	9.2x10^{6}VMT	33.2	0.9	60.3				16.9	26.0		137.3
Unpaved roads	240,000VMT	122.8	52.5	130.7				17.8			323.8
Cleared areas											
Construction	9.4 ac					13.2				0.7	13.9
Agriculture	30 ac						0.8				0.8
Storage areas	508 ac	8.2	6.8	32.0			6.8	46.2		1.5	101.5
Unpaved pkg lots	32 ac	45.1					41.5		3.1	0.7	90.4

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	2.9	12.9	42.7	58.5
IND PROCESSES		15.6	24.7	40.3
FUGITIVE DUST	209.3	321.6	205.4	736.3
Total				

DESCRIPTION OF SITE

SAROAD code - 14 2960 10

Location - 15th and Madison



Monitor height - 20 ft, on roof of
two story building

Land use, by sector -

1a suburban commercial
1b suburban commercial
1c suburban commercial
1d suburban commercial

2 dense residential
3 heavy industry
4 heavy industry
5 light industry

6 suburban commercial
7 heavy industry
8 heavy industry
9 light industry

10 dense residential
11 undeveloped
12 light industry
13 undeveloped

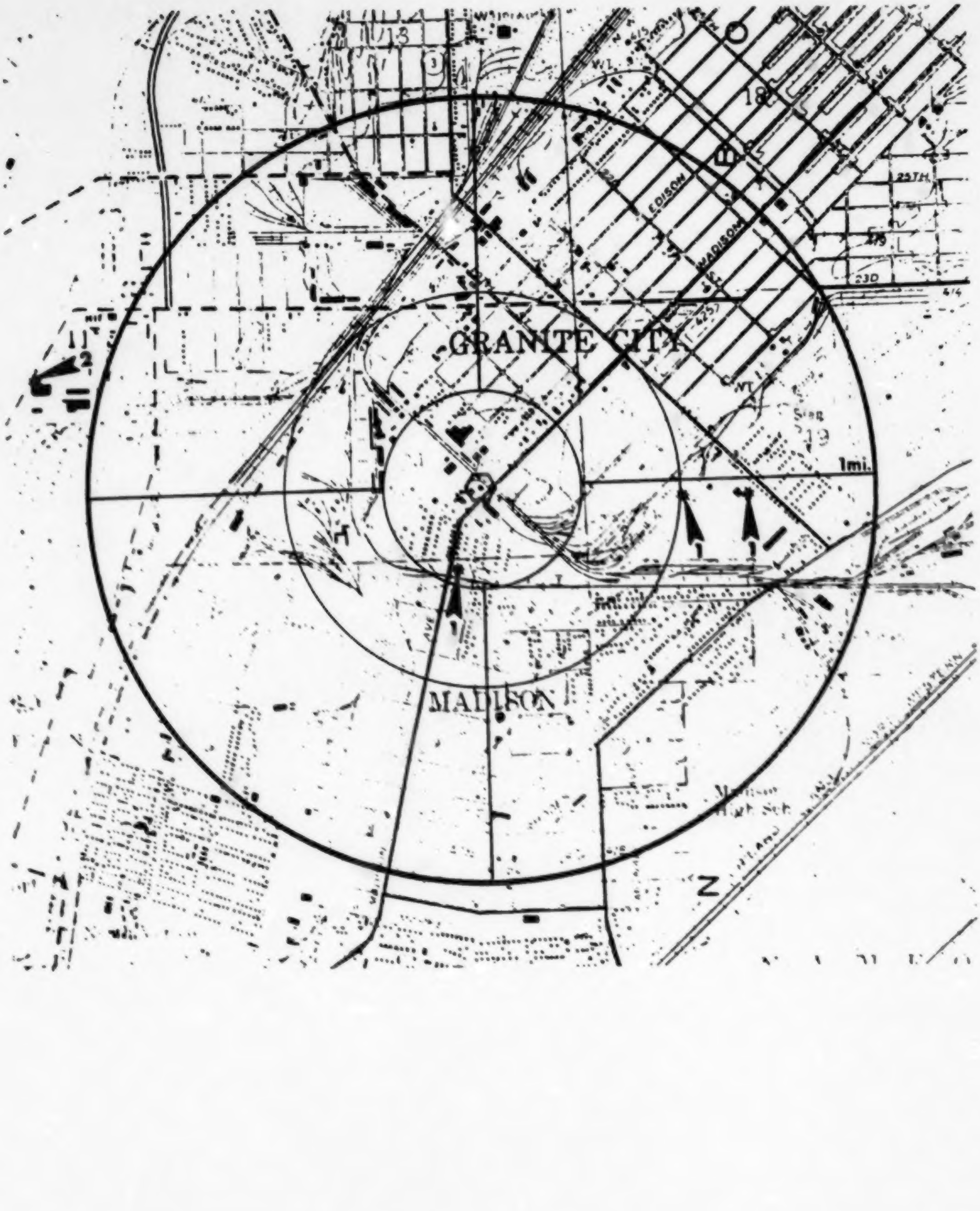
Topography - no special terrain

Localized sources, within 200 ft of monitor -

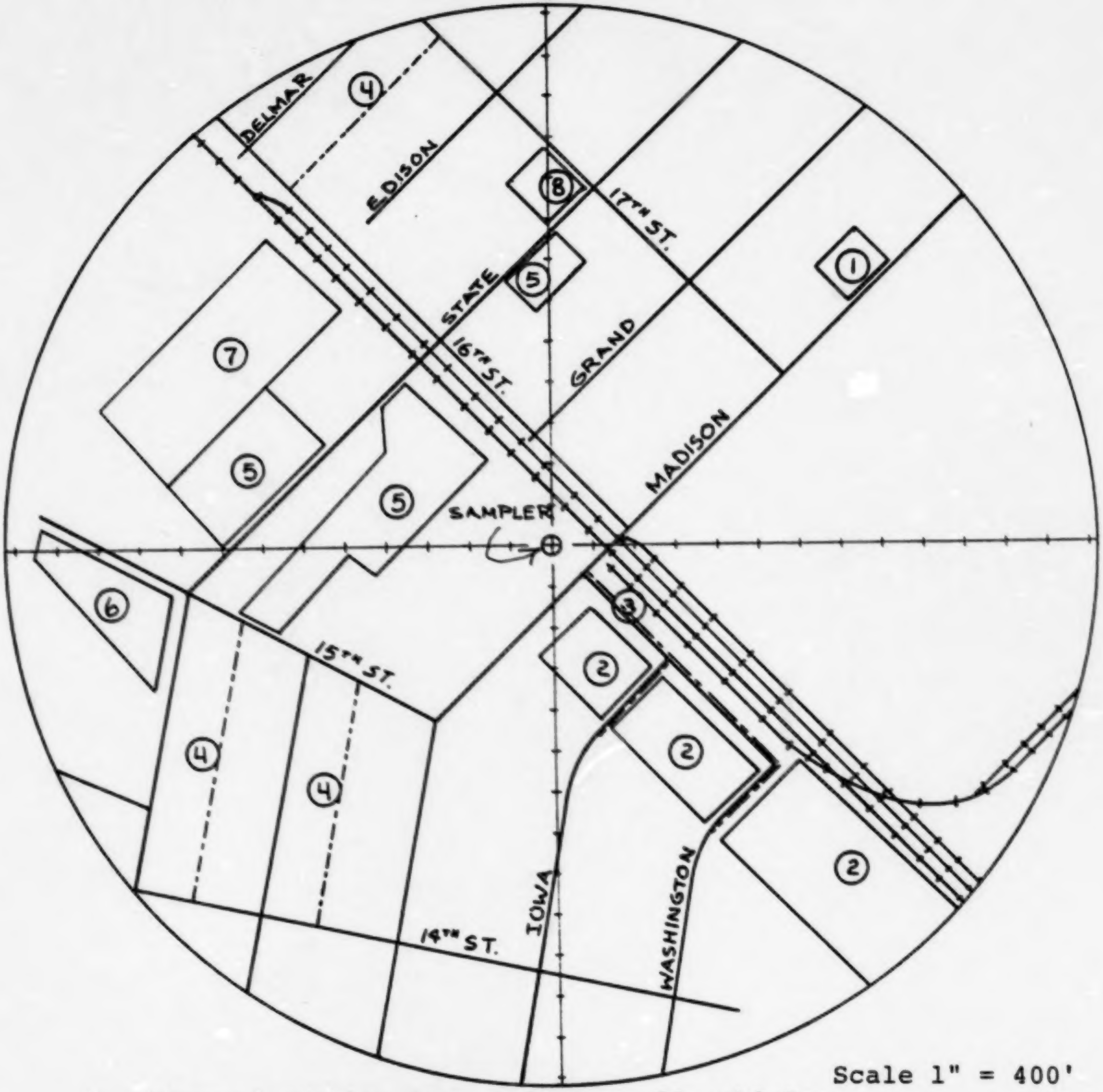
Source	Distance	Description
Madison Street	130 ft	14,300 ADT, dirty, uncurbed
South Street	130 ft	200 ADT, unpaved
Railroad tracks	100 ft	locomotive emissions

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	154	This information was not available
1975	137	

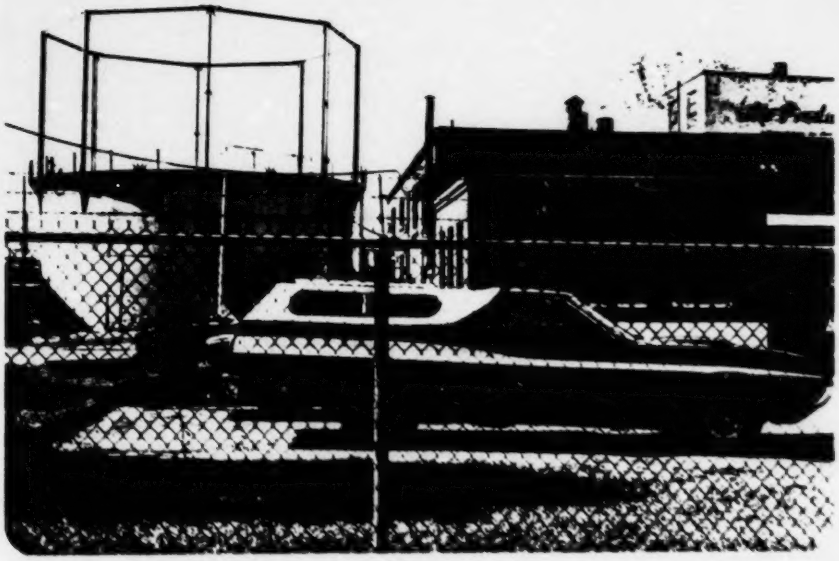

GRANITE CITY
MADISON
1mi.
EDISON
MADISON
25TH
23D
Madison High Sch
18
19
13

One mile radius around 15th and Madison site.


N
DELMAR
④
EDISON
⑧
17TH ST.
①
⑤
STATE
16TH ST.
GRAND
⑦
⑤
⑤
MADISON
SAMPLER
③
②
⑥
15TH ST.
④
④
②
②
IOWA
WASHINGTON
14TH ST.
Scale 1" = 400'

1. Unpaved parking lot, 0.5 acre, 20 vehicles
2. Unpaved truck parking, 5.8 acres, 200 trucks and flat bed trailers
3. Unpaved roads, 1350 ft, 200 trucks
4. Unpaved alleys, 1800 ft, 10 cars
5. Unpaved storage, 5.0 acres
6. Unpaved parking lot, 1.0 acre, 100 vehicles
7. Scrap pile, 3.3 acres

One-quarter mile radius around 15th and Madison site.



Viewed to the northwest.

Viewed to the southeast.

Sampler at 15th and Madison.

POINT SOURCE SUMMARY

Site: 15th and Madison

Plant number	Emission level, t/yr	Distance from site, mi	Compass direction,°
1	560	.20	290
1	1,960	.50	95
1	280	.69	95
2	90	1.2	295
3	1,758	2.9	225
4	160	3.3	245
5	372	3.3	225
6	53	3.5	230
13	77	4.9	200

AREA SOURCE SUMMARY

Site: 15th and Madison

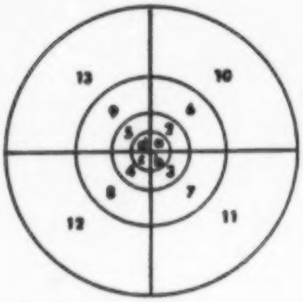
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel					0.4	0.5	0.1	0.7	1.6	3.3	6.6
Res/Com/Ind fuel		2.2	1.5	0.9	0.6	1.4	6.7	2.6	5.0	5.9	26.8
Incinerators											
Rail/Air/Vessel			0.1	0.2	0.5	0.4	0.5	1.6	2.8	1.8	7.9
Auto exhaust	29.0x10^{6}VMT	2.1	1.5	0.1	0.9	0.2	5.0	6.0	2.0	1.6	19.4
AREA SOURCE INDUS PROCESSES:											
Ind processes				0.6						9.2	9.8
FUGITIVE DUST:											
Railroad yards								4.8			4.8
Clean streets	22.5x10^{6}VMT	5.3		0.3	4.4	0.6	23.1	24.8	10.3	8.2	77.0
Comm streets	6.5x10^{6}VMT	23.4	33.8	0.5		1.1	11.2	27.2			97.2
Unpaved roads	128,200VMT	52.7		22.4			70.7	27.3			173.1
Cleared areas											
Construction	14 ac			14.5			13.9				28.4
Agriculture											
Storage areas	65 ac	1.7				0.3	0.3	7.4		3.4	13.1
Unpaved pkg lots	23 ac	23.4					46.0				69.4

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	4.3	9.2	47.2	60.7
IND PROCESSES		0.6	9.2	9.8
FUGITIVE DUST	106.5	77.9	278.6	463.0
Total	110.8	87.7	335.0	533.5

DESCRIPTION OF SITE

SAROAD code - 14 2120 009

Location - 13 U.S. Route 40



Monitor height - 14 ft, on roof of trailer

Land use, by sector -

1a undeveloped
1b undeveloped
1c undeveloped
1d undeveloped

2 undeveloped
3 undeveloped
4 undeveloped
5 undeveloped

6 agriculture
7 undeveloped
8 agriculture
9 undeveloped

10 undeveloped
11 undeveloped
12 light residential
13 undeveloped

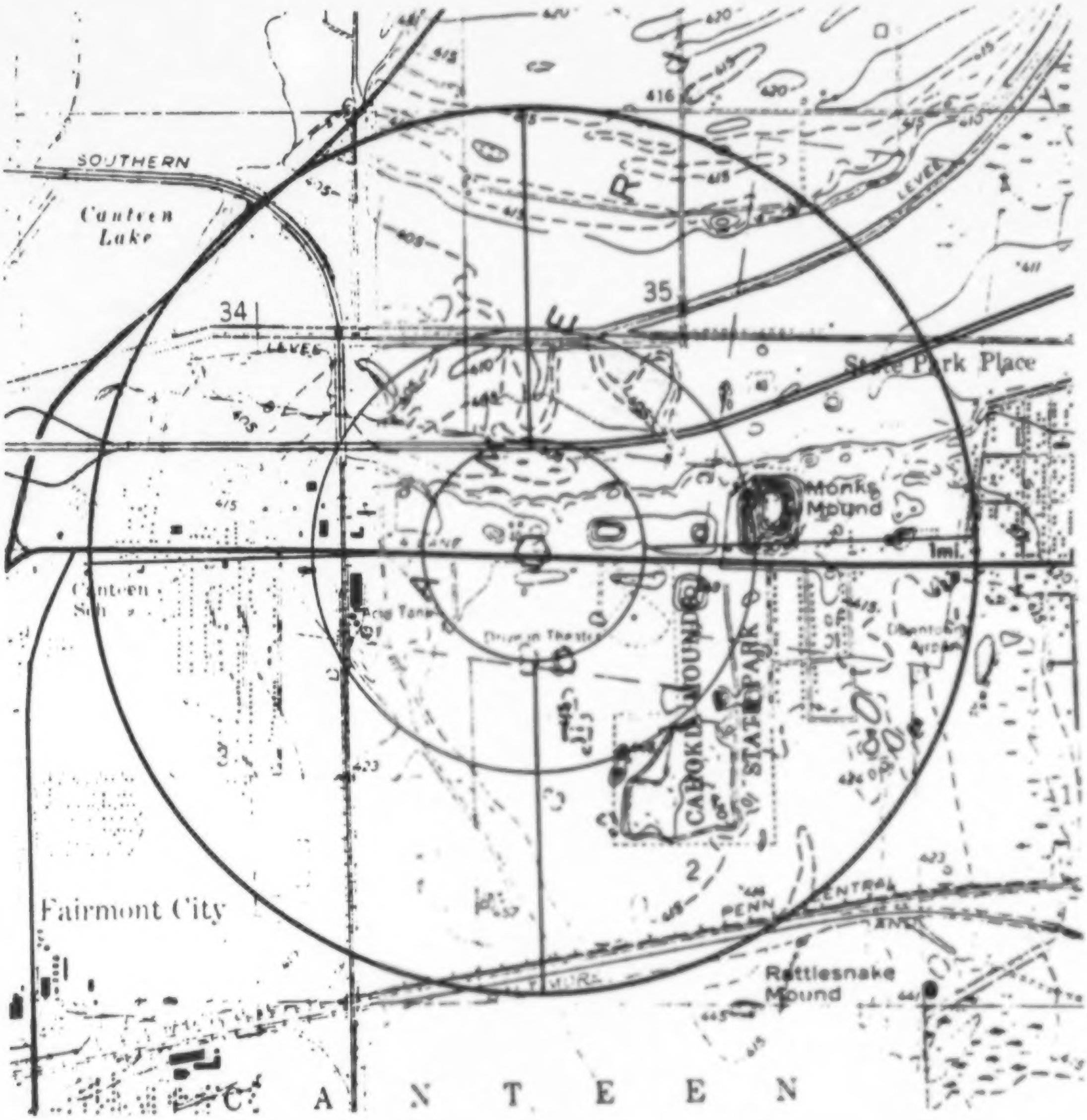
Topography - no special terrain

Localized sources, within 200 ft of monitor -

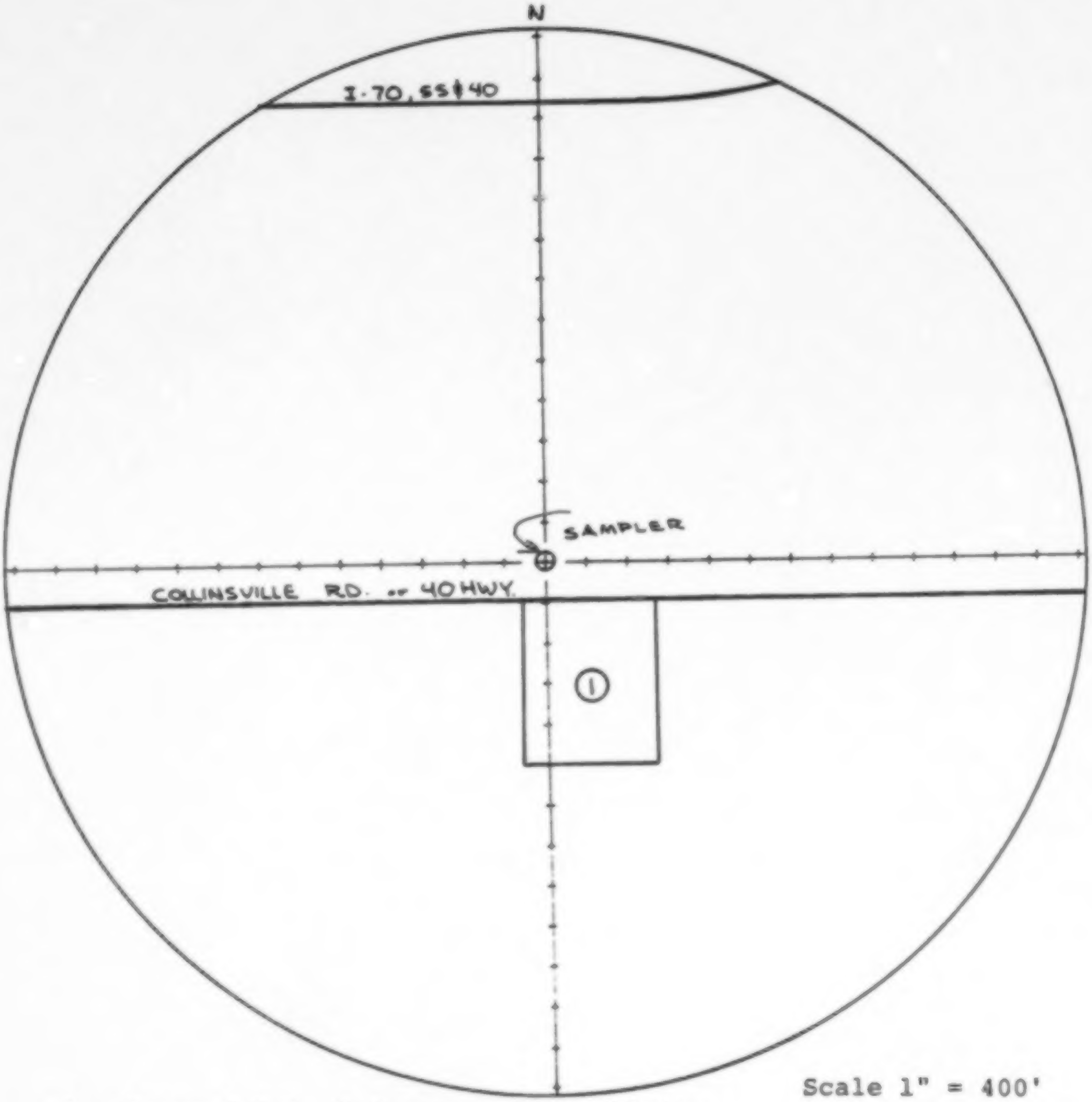
Source	Distance	Description
U.S. Route 40	73 ft	7200 ADT, clean, uncurbed
Parking lot	125 ft	unpaved, 2.8 acres, 120 vehicles

Air quality data -

Year	Annual geometric mean, $\mu g/m^3$	No. of samples
1976	112	This information was not available
1975	102	
1974	111	


SOUTHERN
Canteen Lake
34
35
LEVEE
State Park Place
Monks Mound
1mi.
Canteen Sch
Drive in Theater
CAHOKIA MOUND STATE PARK
2
Fairmont City
PENN CENTRAL
Rattlesnake Mound
C A N T E E N

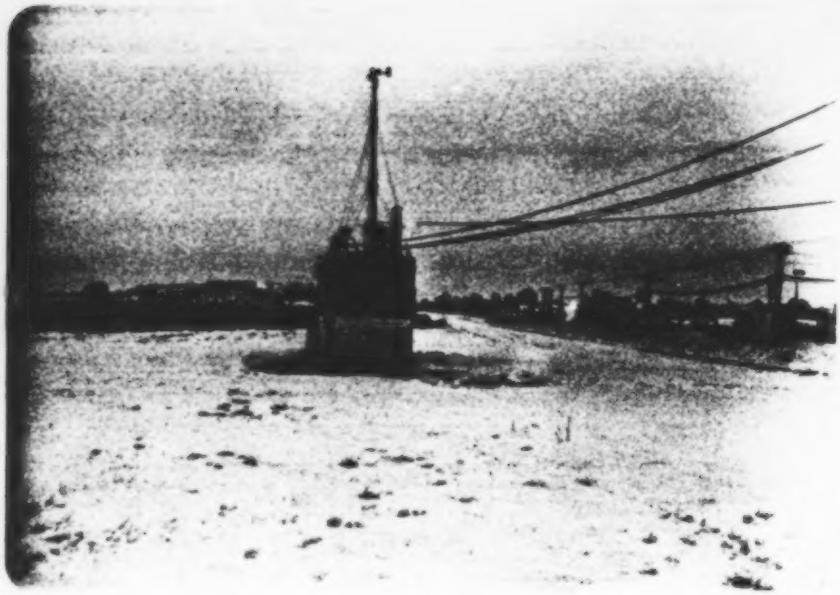
One mile radius around 13 U.S. Route 40 site.


N
I-70, 55 & 40
SAMPLER
COLLINSVILLE RD. or 40 HWY.
①

Scale 1" = 400'

1. Unpaved lot, 2.8 acres, 120 vehicles

One-quarter mile radius around 13 U.S. Route 40 site.



Viewed to the east.

Viewed to the west.

Sampler at 13 U.S. Route 40.

POINT SOURCE SUMMARY

Site: 13 U.S. Route 40

Plant number	Emission level, t/yr	Distance from site, mi	Compass direction,°
1	2,240	3.8	305
1	560	4.5	300

AREA SOURCE SUMMARY

Site: 13 U.S. Route 40

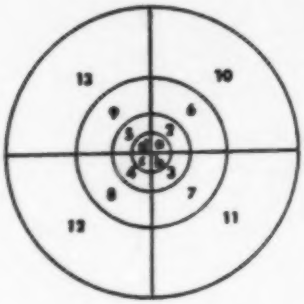
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel							0.1	0.1	0.1	0.1	0.4
Res/Com/Ind fuel		0.4	0.2	0.2	0.2	0.3	0.6	0.7	1.1	1.4	5.1
Incinerators							0.6				0.6
Rail/Air/Vessel		0.1			0.1	0.1	0.1		1.0	0.6	2.0
Auto exhaust		2.6	2.3	0.5	0.5	2.6	3.6	1.1	1.1	5.1	19.4
AREA SOURCE INDUS PROCESSES:											
Ind processes					2.0	2.0					4.0
FUGITIVE DUST:											
Railroad yards											
Clean streets		13.2	11.9	2.5	2.7	13.3	18.6	5.4	5.5	26.6	99.7
Comm streets											
Unpaved roads	1100VMT							1.5			1.5
Cleared areas											
Construction											
Agriculture	12 ac						6.4		2.8	3.0	12.2
Storage areas	24 ac					1.3				3.5	4.8
Unpaved pkg lots	4 ac	2.0					0.4	0.4			2.8

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	3.1	7.0	17.4	27.5
IND PROCESSES				
FUGITIVE DUST	15.2	31.7	74.1	121.0
Total	18.3	38.7	91.5	148.5

DESCRIPTION OF SITE

SAROAD code - 14 1500 002

Location - 115 A West Main



Monitor height - 30 ft, on roof of
two story building

Land use, by sector -

1a suburban commercial
1b dense residential
1c dense residential
1d light residential

2 light residential
3 light residential
4 light residential
5 light residential

6 light residential
7 light residential
8 light residential
9 light residential

10 light residential
11 undeveloped
12 light residential
13 undeveloped

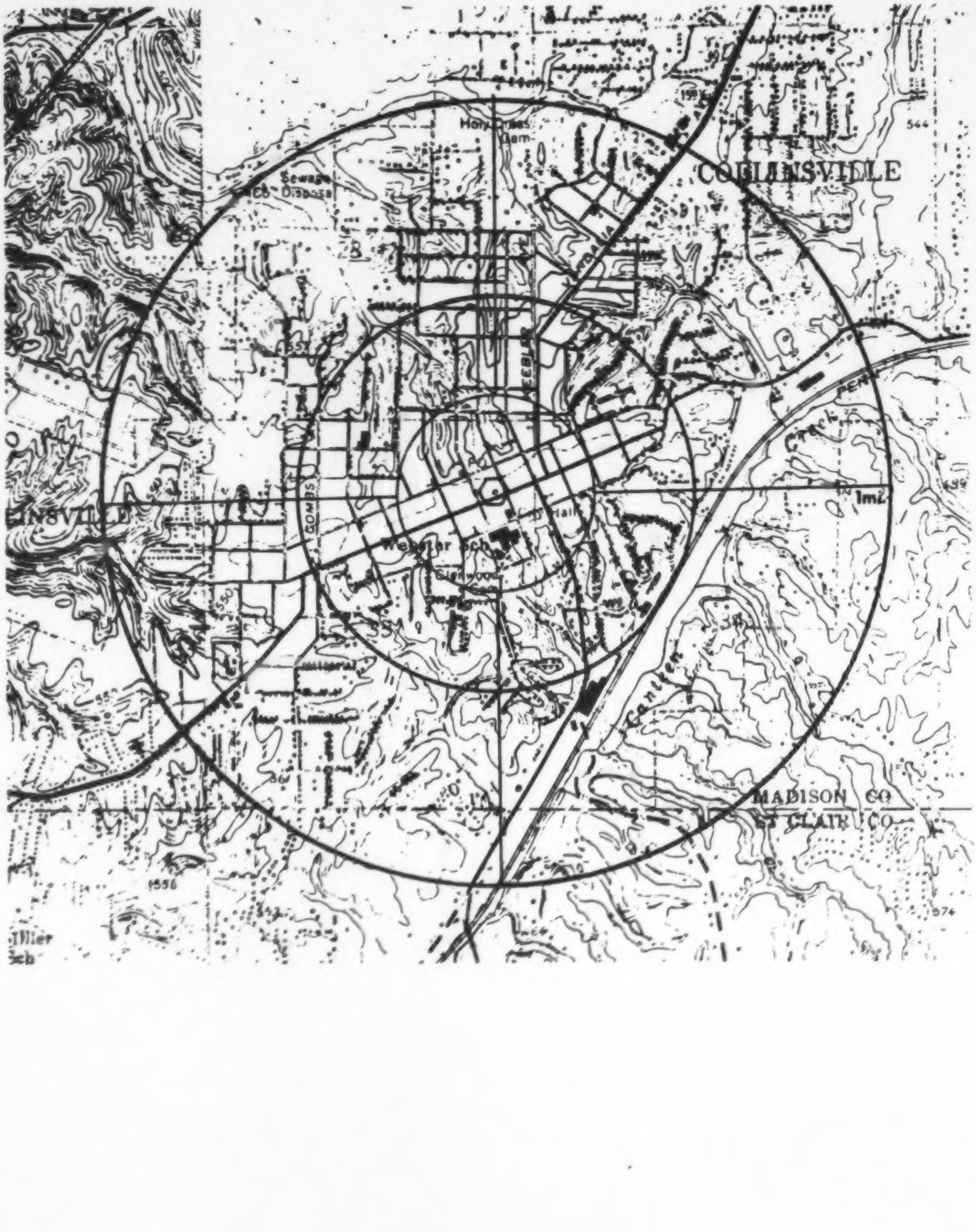
Topography - no special terrain

Localized sources, within 200 ft of monitor -

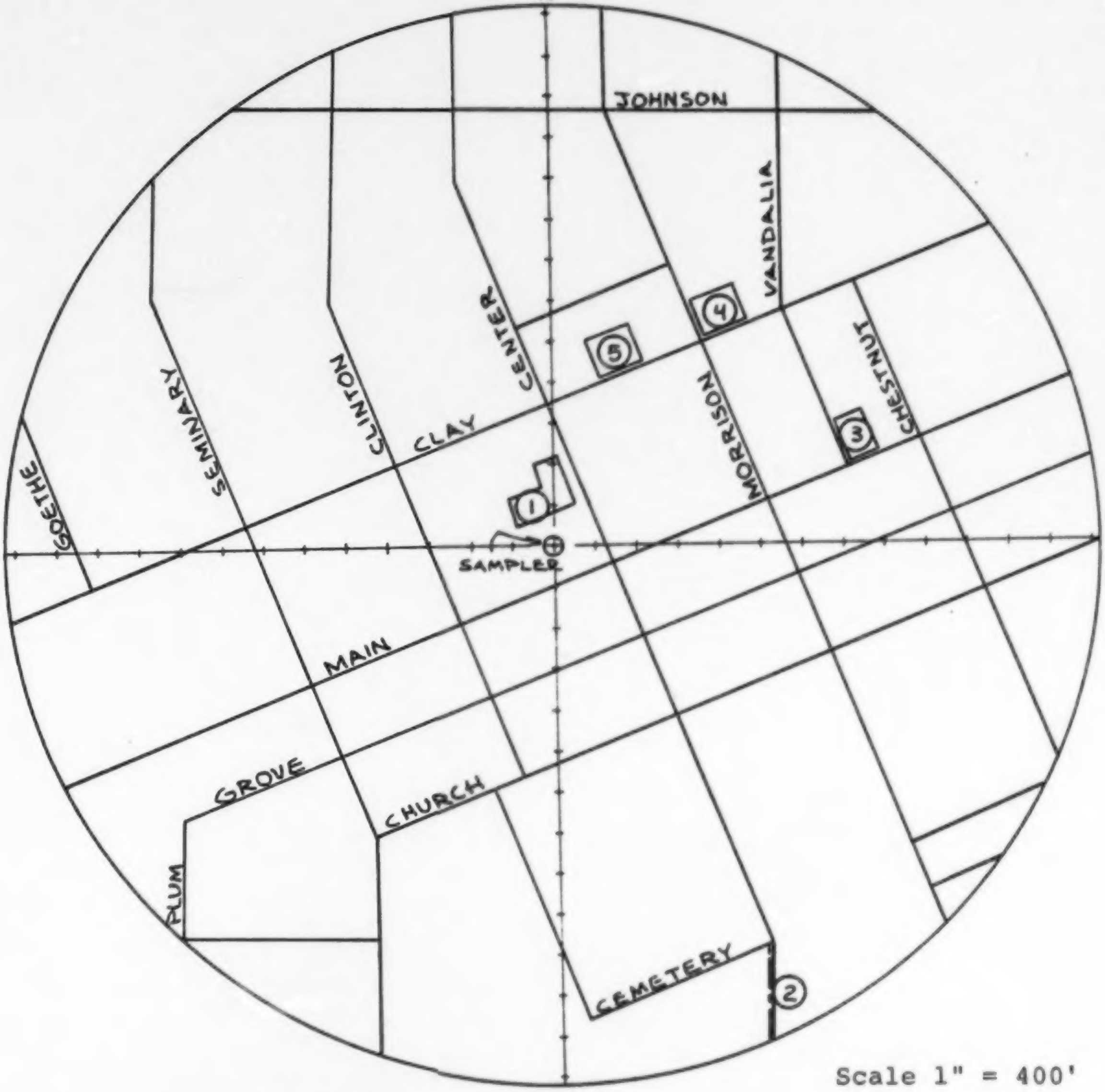
Source	Distance	Description
Main Street	25 ft	9400 ADT, clean, curbed
Center Street	150 ft	800 ADT, dirty, curbed

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	76	This information was not available
1975	67	
1974	66	


COLLINSVILLE
Holy Cross Cem
Sewage Disposal
Webster Sch
Canteen
Creek
1mi
MADISON CO
ST CLAIR CO

One mile radius around 115 A West Main site.

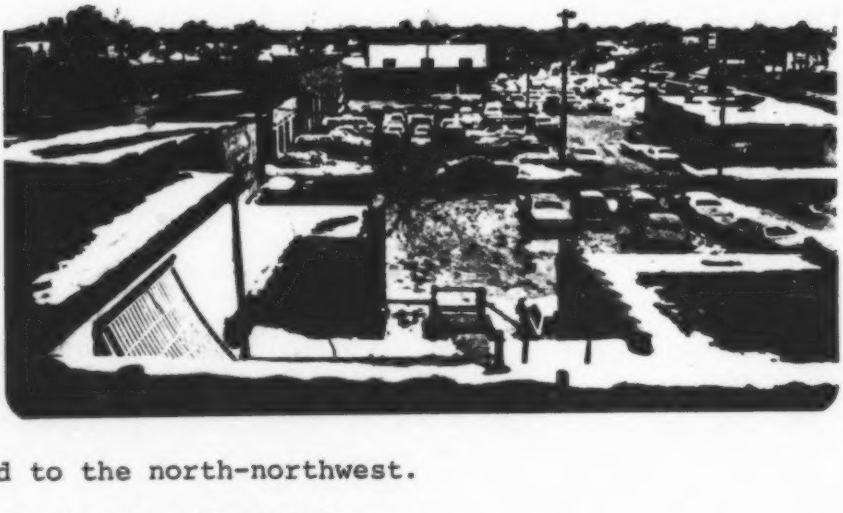

N
JOHNSON
VANDALIA
CENTER
CLINTON
SEMINARY
GOETHE
CLAY
MORRISON
CHESTNUT
SAMPLER
MAIN
GROVE
CHURCH
PLUM
CEMETERY
1
2
3
4
5

Scale 1" = 400'

1. Unpaved lot, 0.1 acre, 16 cars
2. Unpaved road, 220 ft, 20 cars
3. Unpaved lot, 0.1 acre, 20 cars
4. Unpaved lot, 0.1 acre, 12 cars
5. Unpaved lot, 0.1 acre, 12 cars

One-quarter mile radius around 115 A West Main site.

Viewed to the east-northeast.



Viewed to the north-northwest.

Sampler at 115 A West Main.

POINT SOURCE SUMMARY

Site: 115 A West Main

Plant number	Emission level, t/yr	Distance from site, mi	Compass direction,°

There are no point sources within 5 mi of this site.

AREA SOURCE SUMMARY

Site: 115 A West Main

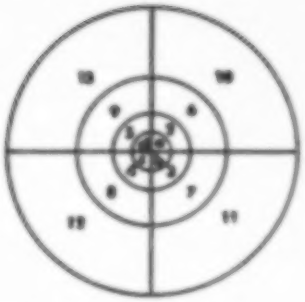
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel							0.1	0.1	0.1	0.1	0.4
Res/Com/Ind fuel		0.4	0.3	0.7	0.4		1.2	3.6	0.9	0.3	7.8
Incinerators									0.4		0.4
Rail/Air/Vessel							0.2				0.2
Auto exhaust	23.8x10^6 VMT	3.3	1.6	2.4	1.6	0.1	2.8	1.5	2.3	0.1	15.7
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards											
Clean streets	22.8x10^6 VMT	16.6	7.9	12.1	8.0		13.9	7.8	11.5		77.8
Comm streets	1.1x10^6 VMT	2.6	1.3	2.0	1.3	1.5	2.2	0.9	2.0	2.2	16.0
Unpaved roads	0.3x10^6 VMT	59.5	29.6	44.3	29.6	34.4	49.3	19.7	44.3	49.3	360.0
Cleared areas											
Construction											
Agriculture											
Storage areas	13 ac						2.6				2.6
Unpaved pkg lots	0.4 ac	0.2									0.2

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	3.7	7.1	13.7	24.5
IND PROCESSES				
FUGITIVE DUST	78.9	172.0	205.7	456.6
Total	82.6	179.1	219.4	481.1

DESCRIPTION OF SITE

SAROAD code - 26 4280 012

Location - Forest Park



Monitor height - Not determined, sampling site was not operational at time of inventory

Land use, by sector -

1a undeveloped
1b undeveloped
1c undeveloped
1d undeveloped

2 undeveloped
3 undeveloped
4 undeveloped
5 undeveloped

6 undeveloped
7 dense residential
8 dense residential
9 light residential

10 dense residential
11 general industry
12 dense residential
13 dense residential

Topography - elevated receptor

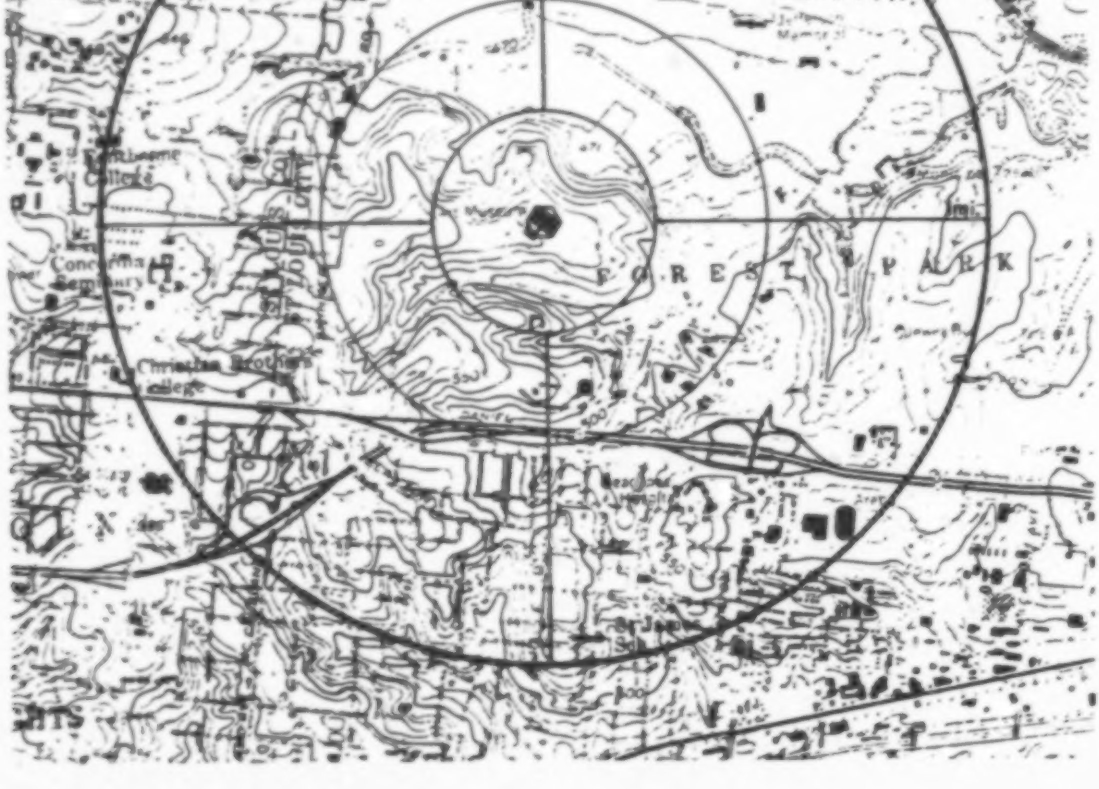
Localized sources, within 200 ft of monitor -

Source	Distance	Description

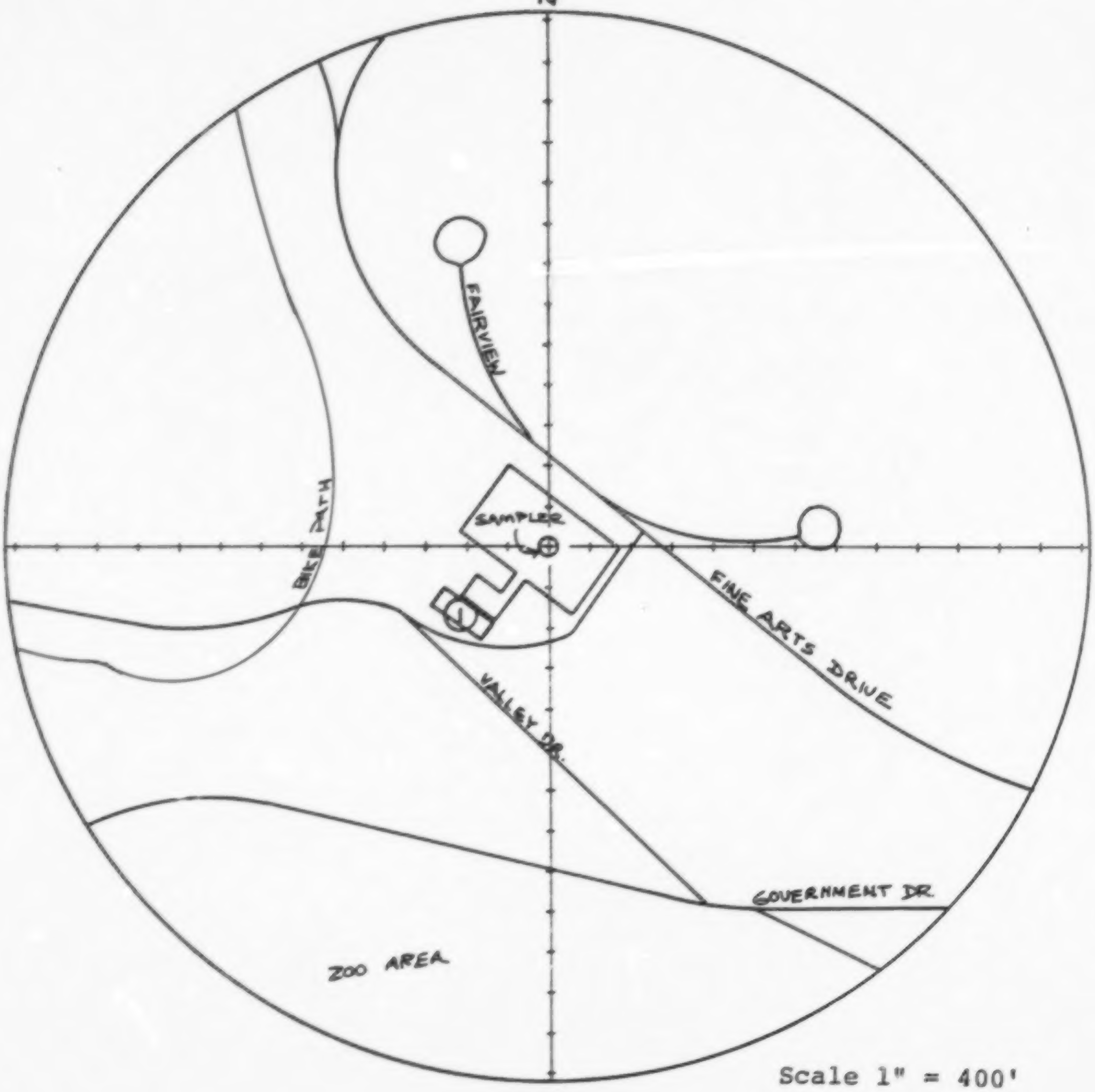
Not determined - see note for monitor height

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	71	This information was not available
1975	61	
1974	59	

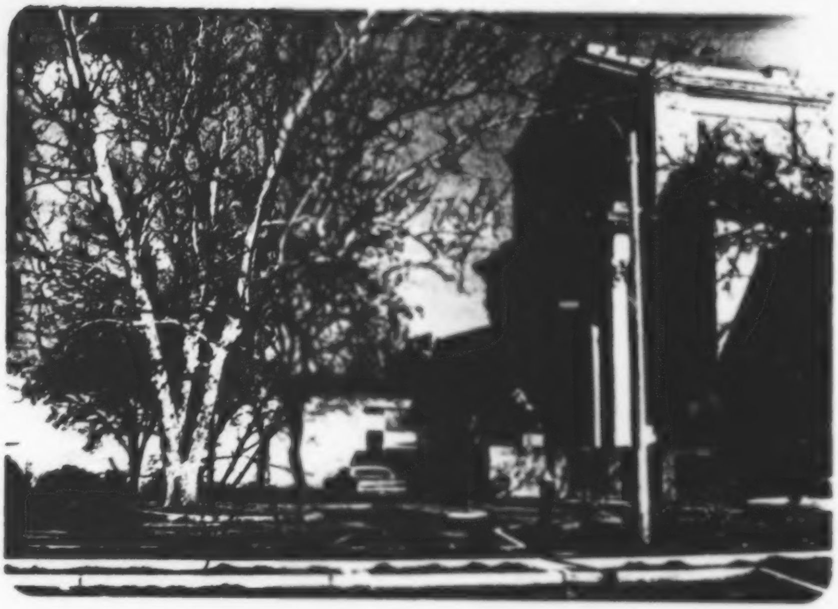

WASHINGTON UNIVERSITY
LINDELL
FOREST PARK
Concordia Seminary
Christian Brothers College
500
680

One mile radius around Forest Park site.


N
FAIRVIEW
BIKE PATH
SAMPLER
FINE ARTS DRIVE
VALLEY DR.
GOVERNMENT DR.
ZOO AREA
1
Scale 1" = 400'

1. Construction/excavation, 0.2 acre

One-quarter mile radius around Forest Park site.



Viewed to the northwest.

Viewed to the southwest.

Sampler at Forest Park.

POINT SOURCE SUMMARY

Site: Forest Park

Plant number	Emission level, t/yr	Distance from site, mi	Compass direction,°
12	244	.98	315
11	296	1.8	95

AREA SOURCE SUMMARY

Site: Forest Park

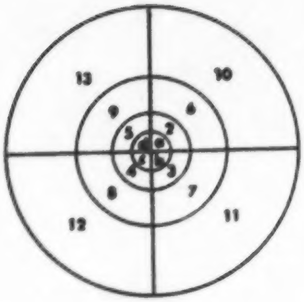
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		0.1	0.1	0.1	0.1	0.1	0.3	0.9	0.4	0.2	2.3
Res/Com/Ind fuel		15.1	15.1	7.2	7.3	4.1	32.5	21.2	7.7	1.9	112.1
Incinerators								0.1	0.4		0.5
Rail/Air/Vessel									0.3		0.3
Auto exhaust	92.8x10^6 VMT			7.6	7.3	2.9	5.3	17.6	12.2	8.4	61.3
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards											
Clean streets	92.8x10^6 VMT	0.2	0.2	39.3	37.6	15.0	27.4	91.0	63.2	43.2	317.1
Comm streets											
Unpaved roads											
Cleared areas											
Construction											
Agriculture											
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	15.2	51.9	109.4	176.5
IND PROCESSES				
FUGITIVE DUST	0.2	92.1	224.8	317.1
Total	15.4	144.0	334.2	493.6

DESCRIPTION OF SITE

SAROAD code - 26 4280 062

Location - River des Peres



Monitor height - 13 ft, on roof of trailer

Land use, by sector -

1a general industry
1b general industry
1c light industry
1d general industry

2 general industry
3 dense residential
4 light industry
5 dense residential

6 light industry
7 dense residential
8 heavy industry
9 dense residential

10 light residential
11 light industry
12 dense residential
13 light residential

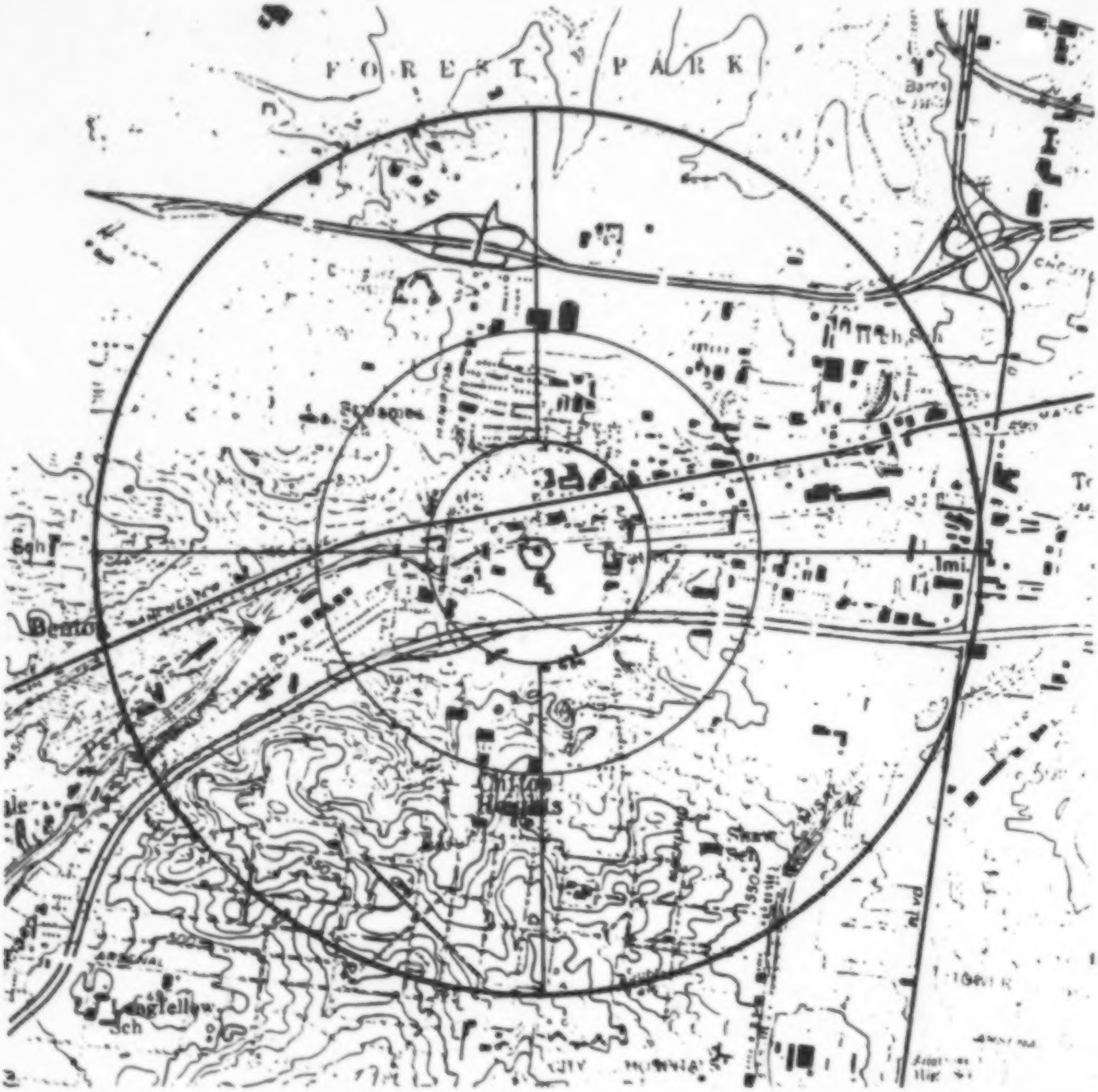
Topography - no special terrain

Localized sources, within 200 ft of monitor -

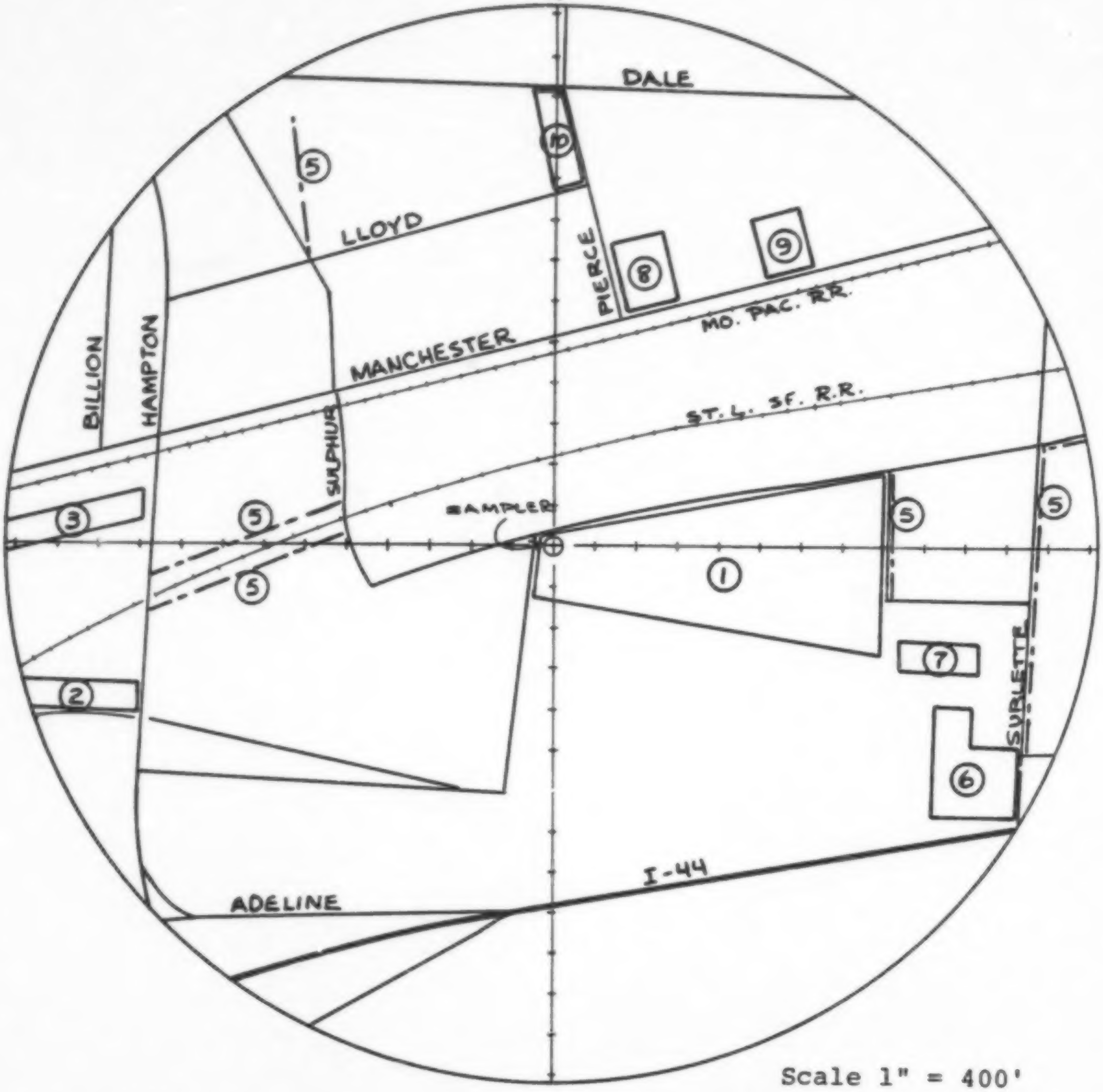
Source	Distance	Description
Industrial Drive	10 ft	300 ADT, dirty, uncurbed
Sulphur Street	50 ft	75 ADT, dirty, uncurbed

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	-	This information was not available
1975	90	
1974	-	


FOREST PARK
Benton
Sch
Clifton Heights
Longfellow Sch
Imi
Tc

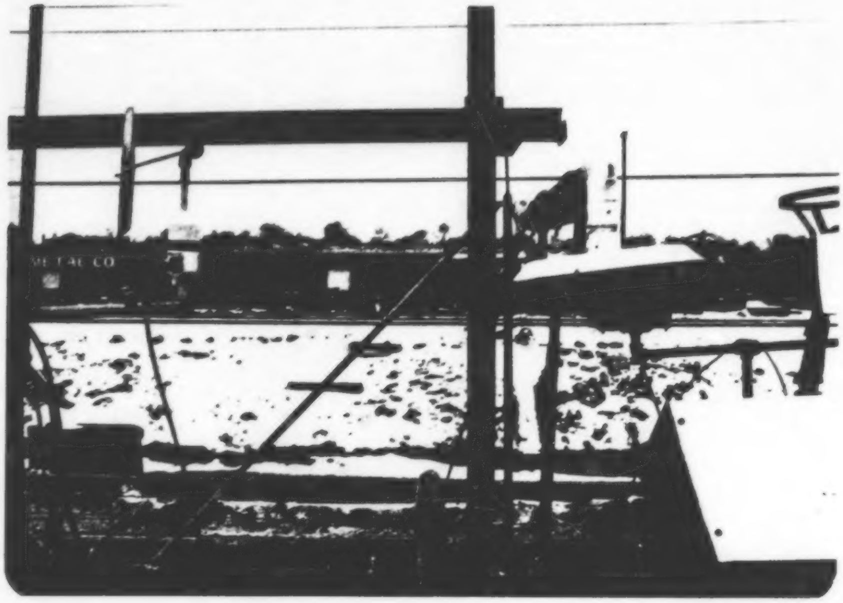
One mile radius around River des Peres site.


N
DALE
LLOYD
PIERCE
BILLION
HAMPTON
MANCHESTER
MO. PAC. RR.
ST. L. SF. R.R.
SULPHUR
SAMPLER
SURLETTE
ADELINE
I-44
①
②
③
⑤
⑥
⑦
⑧
⑨
⑩

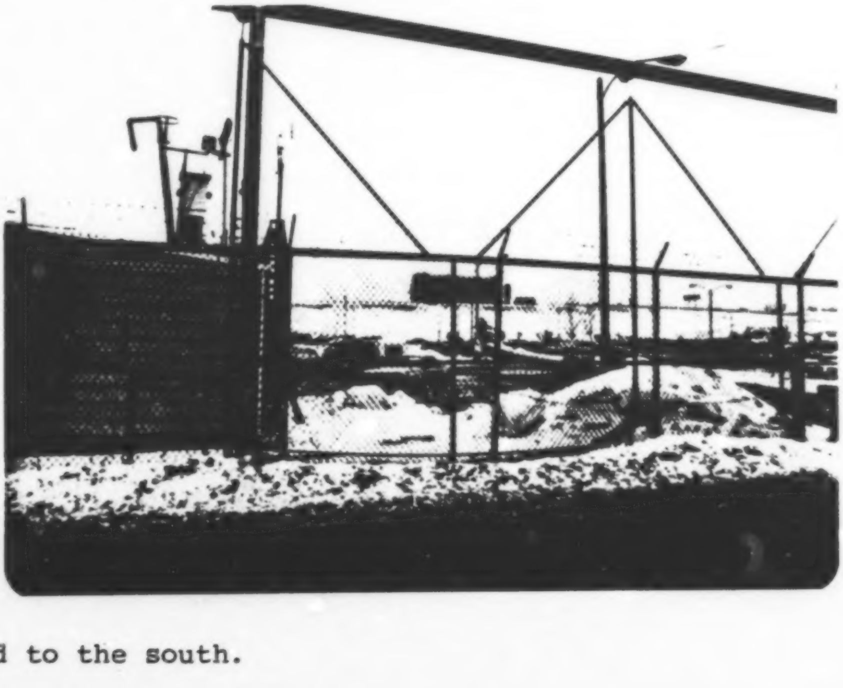
Scale 1" = 400'

1. Aggregate storage, 6.4 acres
2. Unpaved storage, 0.2 acre
3. Unpaved lot, 0.5 acre, 80 cars
4. Incinerator, 200 lb refuse/day
5. Unpaved roads, 2515 ft, 20 cars
6. Unpaved storage, 1.1 acres
7. Unpaved lot, 0.3 acre, 10 cars
8. Unpaved lot, 0.5 acre, 30 cars
9. Unpaved lot, 0.4 acre, 15 cars
10. Exposed area, 0.2 acre

One-quarter mile radius around River des Peres site.



Viewed to the north.



Viewed to the south.

Sampler at River des Peres.

POINT SOURCE SUMMARY

Site: River des Peres

Plant number	Emission level, t/yr	Distance from site, mi	Compass direction,°
11	396	1.8	55
12	244	2.2	335
10	62	4.5	110
8	160	4.6	125

AREA SOURCE SUMMARY

Site: River des Peres

Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		0.1	0.1	0.1	0.5	0.1	7.6	3.5	2.4	0.8	15.2
Res/Com/Ind fuel		2.4	1.4	0.9	2.6	4.4	10.8	3.6	6.2	18.7	51.0
Incinerators		0.1	0.4	0.2							0.7
Rail/Air/Vessel		0.4	0.3	0.2	0.3	0.1	0.5	0.4	1.7	0.1	4.0
Auto exhaust	119.1x10^6 VMT	8.5	0.6	3.5	5.7	2.7	20.7	10.0	13.7	13.3	78.7
AREA SOURCE INDUS PROCESSES:											
Ind processes			2.0						41.0		43.0
FUGITIVE DUST:											
Railroad yards											
Clean streets	119.1x10^6 VMT	44.0	3.0	18.1	29.4	14.0	106.8	51.9	71.0	69.0	407.2
Comm streets											
Unpaved roads	36,544 VMT	49.3									49.3
Cleared areas											
Construction											
Agriculture											
Storage areas	15.7 ac	4.1	1.0					0.6	1.0		6.7
Unpaved pkg lots	4.0 ac	2.1	0.2				0.8				3.1

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	11.5	24.1	114.0	149.6
IND PROCESSES		2.0	41.0	43.0
FUGITIVE DUST	99.5	65.7	301.1	486.7
Total	111.0	91.8	456.1	658.9

4. SUMMARIES FOR RAMS SITES

A six or seven page summary was compiled for each of the 12 particulate sampler sites inventoried in the Regional Air Pollution Study.[6] These site data summaries are presented in this chapter.

The first page of the summary is a complete description of the individual site including the RAMS site number or SAROAD code, the street address, the location and height of the monitor, the land use within a three mile radius, the topography in the vicinity of the site, localized sources within 200 ft of the monitor, and air quality data for a two to four year period.

The sampler site locations and surrounding one mile radius survey areas are illustrated on the second page. The third page of each summary is a more detailed map showing sources within 1/4 mile of the sampler.

Two photographs illustrating the sampler, one viewed in the direction where the greatest potential for localized pollution influence existed, are presented on the fourth page of each summary.

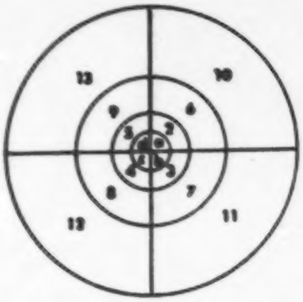
The next page(s) of the summaries lists any identified point sources located within a five mile radius of the sampler. Those sources within one mile are also located on the map of the survey area.

The last page summarizes the area sources for a one mile radius about each sampler site.

DESCRIPTION OF SITE

SAROAD code - 26 4280 006

Location - 14th and Market



Monitor height - 50 ft, on roof of four story Municipal Courts building

Land use, by sector -

1a central commercial
1b central commercial
1c central commercial
1d central commercial

2 central commercial
3 central commercial
4 undeveloped
5 central commercial

6 central commercial
7 central commercial
8 dense residential
9 central commercial

10 undeveloped
11 central commercial
12 dense residential
13 dense residential

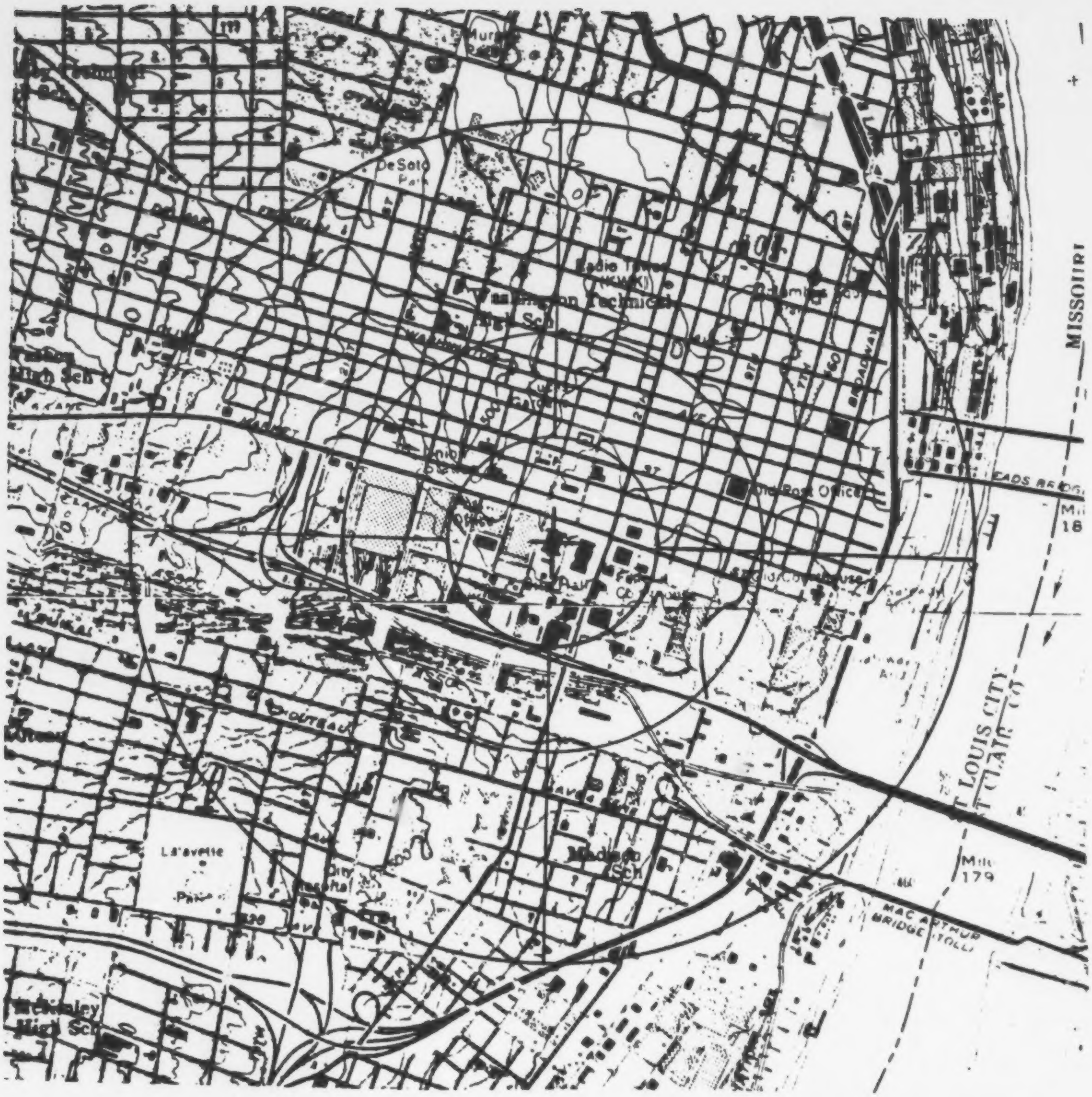
Topography - no special terrain

Localized sources, within 200 ft of monitor -

Source	Distance	Description
Market Street	65 ft	20,000 ADT
14th Street	40 ft	11,460 ADT

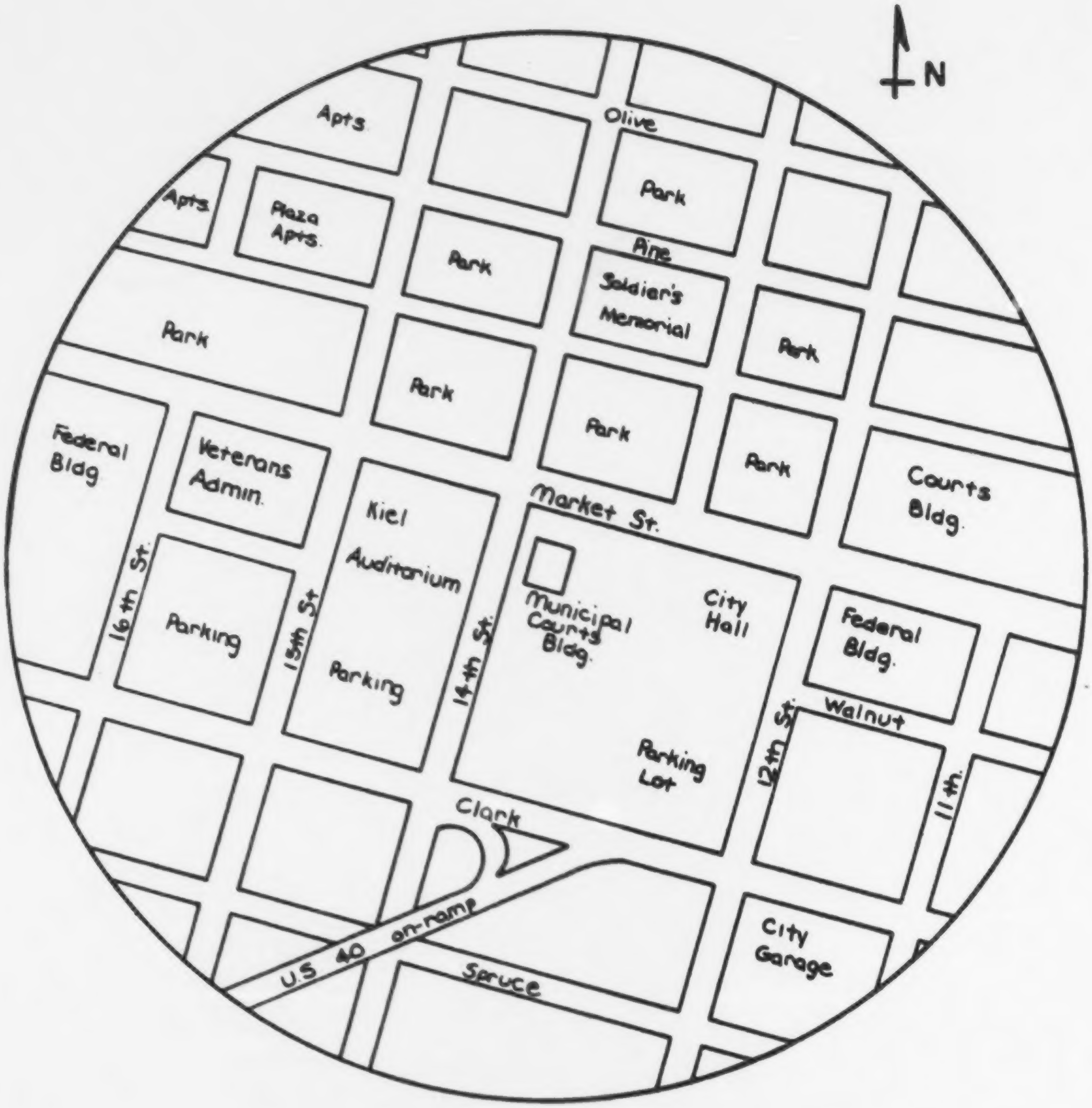
Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1977	85	54
1976	86	49
1975	81	94
1974	79	107
1973	86	82



De Soto Park
Radio Tower
Washington Technical High Sch
Old Post Office
EADS BRIDGE
MISSOURI
ST LOUIS CITY
ST CLAIR CO
Mile 179
MAC ARTHUR BRIDGE (TOLL)
Lafayette Park
Madison Sch
McKinley High Sch
City Hospital
Broadway

One mile radius around 14th and Market site.


N
Apts.
Olive
Apts.
Plaza Apts.
Park
Park
Pine
Soldier's Memorial
Park
Park
Park
Park
Park
Federal Bldg
Veterans Admin.
Kiel Auditorium
Market St.
Courts Bldg.
16th St.
15th St.
14th St.
Parking
Parking
Municipal Courts Bldg.
City Hall
Federal Bldg.
Walnut
Parking Lot
12th St.
11th.
Clark
U.S. 40 on-ramp
Spruce
City Garage

One-quarter mile radius around 14th and Market site.

Viewed to the north.

Viewed to the south-southeast.
Sampler at 14th and Market.

POINT SOURCE SUMMARY

STATION(11): 14TH & MARK
NAME:
ADDRESS:
UTM ZONE: 15 UTMV: 4278.9

ELEVATION: 0 FT.
UTMH: 743.6

STACKS WITHIN 5 MILE RADIUS

PLANT	PLANT-STACK CODE		SIC	UTM ZONE	UTMV	UTMH	ANGLE	DIST (MI.)	STK HT (FT)	PARTICULATE EMISSIONS (TONS)
UNION ELECTRIC	26-4280-38	-01	4911	15	745.20	4280.01	55	1.21	180	2.56
CONTINENTAL GRAIN CO	14-6900-20	-01	2041	15	745.95	4278.95	88	1.46	15	24.79
CONTINENTAL GRAIN CO	14-6900-20	-02	2041	15	745.95	4278.95	88	1.46	15	52.07
MONSANTO CO	26-4280-23	-02	2899	15	743.98	4276.56	170	1.47	150	1.89
MONSANTO CO	26-4280-23	-03	2899	15	743.99	4276.55	170	1.48	150	1.86
MONSANTO CO	26-4280-23	-04	2899	15	744.00	4276.54	170	1.49	150	.43
MONSANTO CO	26-4280-23	-05	2899	15	744.01	4276.53	170	1.49	150	.52
MONSANTO CO	26-4280-23	-06	2899	15	744.10	4276.35	168	1.61	150	226.09
UNION ELECTRIC CAHOKIA	14-6900-14	-01	4911	15	745.14	4276.34	149	1.84	328	1.01
UNION ELECTRIC CAHOKIA	14-6900-14	-02	4911	15	745.13	4276.33	149	1.86	328	1.17
UNION ELECTRIC CAHOKIA	14-6900-14	-03	4911	15	745.08	4276.29	151	1.86	328	.48
UNION ELECTRIC CAHOKIA	14-6900-14	-04	4911	15	745.12	4276.28	149	1.88	328	.35
UNION ELECTRIC CAHOKIA	14-6900-14	-05	4911	15	745.06	4276.25	151	1.88	328	5.79
UNION ELECTRIC CAHOKIA	14-6900-14	-06	4911	15	745.10	4276.24	150	1.90	328	5.97
VA HOSPITAL COCHRAN	26-4280-56	-01	9100	15	740.85	4280.56	301	2.00	43	.62
ANHEUSER BUSCH INC	26-4280-03	-03	2082	15	742.82	4275.56	193	2.13	225	36.33
ANHEUSER BUSCH INC	26-4280-03	-05	2082	15	742.84	4275.53	192	2.15	100	2.46
ANHEUSER BUSCH INC	26-4280-03	-01	2082	15	742.80	4275.52	193	2.16	225	6.07
ANHEUSER BUSCH INC	26-4280-03	-04	2082	15	742.86	4275.51	192	2.16	75	5.57
ANHEUSER BUSCH INC	26-4280-03	-02	2082	15	742.77	4275.48	193	2.19	225	7.53
PVO INTERNATIONAL	26-4280-59	-03	2079	15	744.82	4282.69	17	2.47	70	46.87
PVO INTERNATIONAL	26-4280-58	-01	2079	15	744.81	4282.71	17	2.48	70	106.47
PVO INTERNATIONAL	26-4280-58	-02	2079	15	744.81	4282.70	17	2.48	70	218.37
MALLINCKRODT CHEM	26-4280-17	-05	2899	15	744.27	4282.87	9	2.50	80	3.12
MALLINCKRODT CHEM	26-4280-17	-04	2899	15	744.26	4282.88	9	2.51	121	47.10
MALLINCKRODT CHEM	26-4280-17	-01	2899	15	744.25	4282.90	9	2.52	175	2.50
MORRIS PAINT & VARNISH	14-6900-16	-01	2851	15	747.96	4277.96	102	2.77	40	3.90
MONSANTO CO	14-6900-06	-10	2819	15	746.68	4275.65	136	2.78	140	121.72
MONSANTO CO	14-6900-06	-05	2819	15	746.66	4275.60	137	2.80	140	1.99
MONSANTO CO	14-6900-06	-06	2819	15	746.68	4275.60	136	2.80	140	2.01
MONSANTO CO	14-6900-06	-07	2819	15	746.70	4275.60	136	2.81	140	18.31
UNION ELECTRIC CO VENIC	14-4680-03	-01	4911	15	745.52	4283.01	25	2.82	237	1.29
MONSANTO CO	14-6900-06	-08	2819	15	746.72	4275.60	136	2.82	140	24.45
UNION ELECTRIC CO VENIC	14-4680-03	-02	4911	15	745.52	4283.03	24	2.83	237	.89
MONSANTO CO	14-6900-06	-09	2819	15	746.74	4275.60	136	2.83	140	26.59
UNION ELECTRIC CO VENIC	14-4680-03	-03	4911	15	745.52	4283.05	24	2.84	237	.74
UNION ELECTRIC CO VENIC	14-4680-03	-04	4911	15	745.52	4283.07	24	2.85	237	.30
UNION ELECTRIC CO VENIC	14-4680-03	-05	4911	15	745.52	4283.09	24	2.86	237	.06
CERRO COPPER PRODUCTS	14-6900-25	-01	3351	15	746.14	4275.07	146	2.86	60	.09
CERRO COPPER PRODUCTS	14-6900-25	-02	3351	15	746.14	4275.07	146	2.86	60	.09
CERRO COPPER PRODUCTS	14-6900-25	-03	3351	15	746.14	4275.07	146	2.86	60	.09
SWIFT & CO NATIONAL CIT	14-6900-02	-01	2013	15	747.81	4280.60	65	2.87	250	.92

AREA SOURCE SUMMARY

Site: 14th and Market

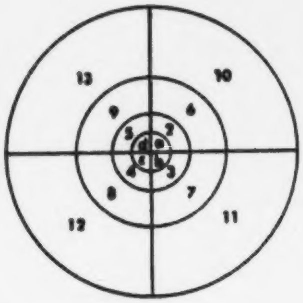
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		2.1	2.4	1.4	0.2	2.9	5.2	7.7	4.7	2.4	29.0
Res/Com/Ind fuel		26.0	24.1	7.4	3.8	33.9	69.3	26.1	12.6	68.8	272.0
Incinerators											
Rail/Air/Vessel		2.4	0.001	1.9	3.2	0.0004	0.08	3.3	7.4	0.001	18.3
Auto exhaust	190.4x10^{6}VMT	10.6	7.0	8.0	7.2	5.5	20.2	38.0	15.9	13.4	125.8
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards	73 ac			2.1	2.7				2.5		7.3
Clean streets	190.4x10^{6}VMT	55.0	36.3	41.5	37.2	28.5	104.4	196.2	82.4	69.2	650.7
Comm streets											
Unpaved roads											
Cleared areas											
Construction	40 ac						106.7	61.32			168.02
Agriculture											
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	13.0	108.9	295.1	417.0
IND PROCESSES				
FUGITIVE DUST	55.0	148.3	622.7	826.0
Total	68.0	257.2	917.8	1243.0

DESCRIPTION OF SITE

SAROAD code - 26 4280 007

Location - South Broadway and Hurck



Monitor height - 30 ft, on roof of old fire station

Land use, by sector -

1a	dense residential
1b	dense residential
1c	dense residential
1d	dense residential
2	suburban commercial
3	heavy industry
4	undeveloped
5	dense residential
6	dense residential
7	undeveloped
8	dense residential
9	light industry
10	dense residential
11	agriculture
12	dense residential
13	dense residential

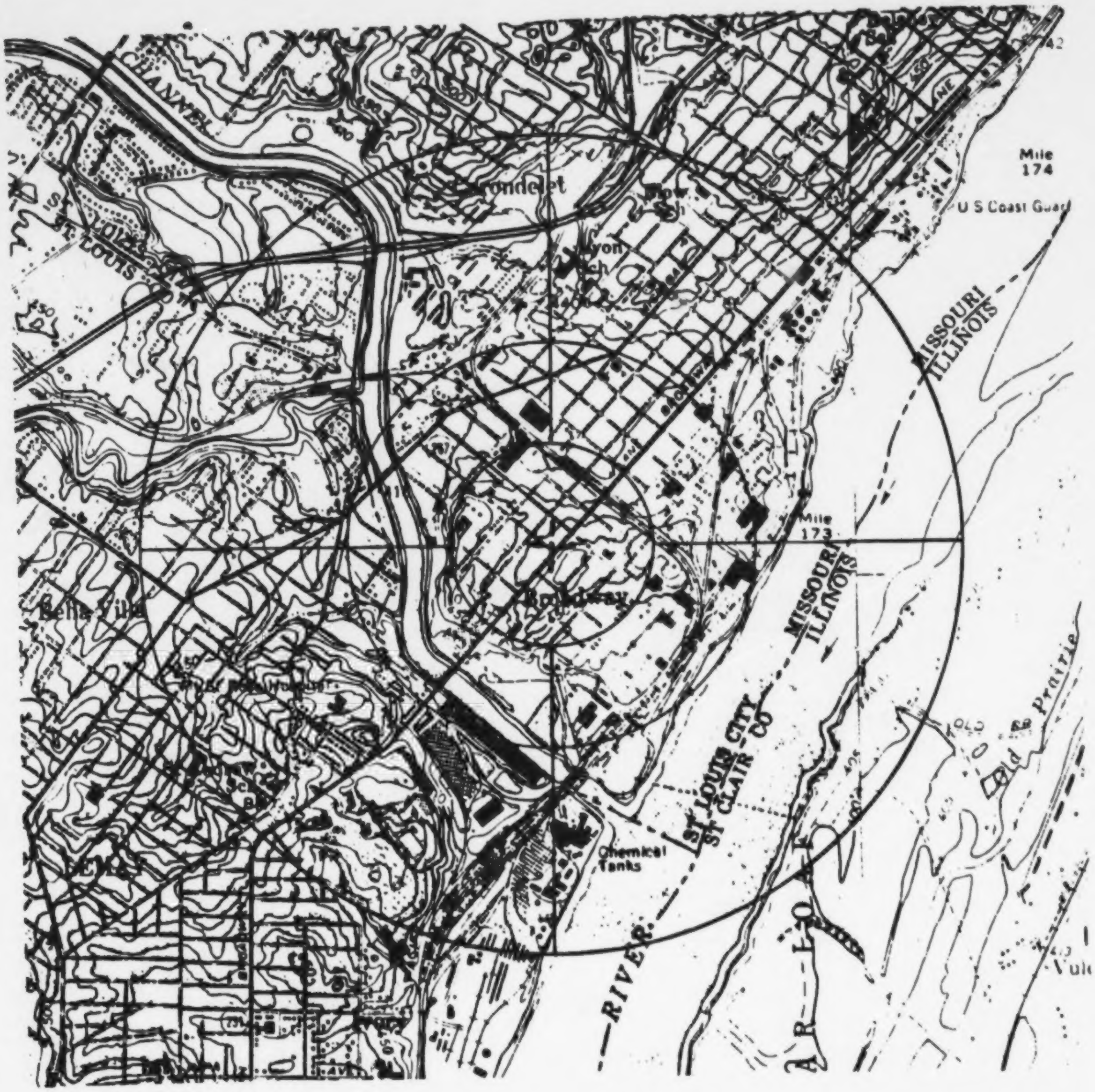
Topography - no special terrain

Localized sources, within 200 ft of monitor -

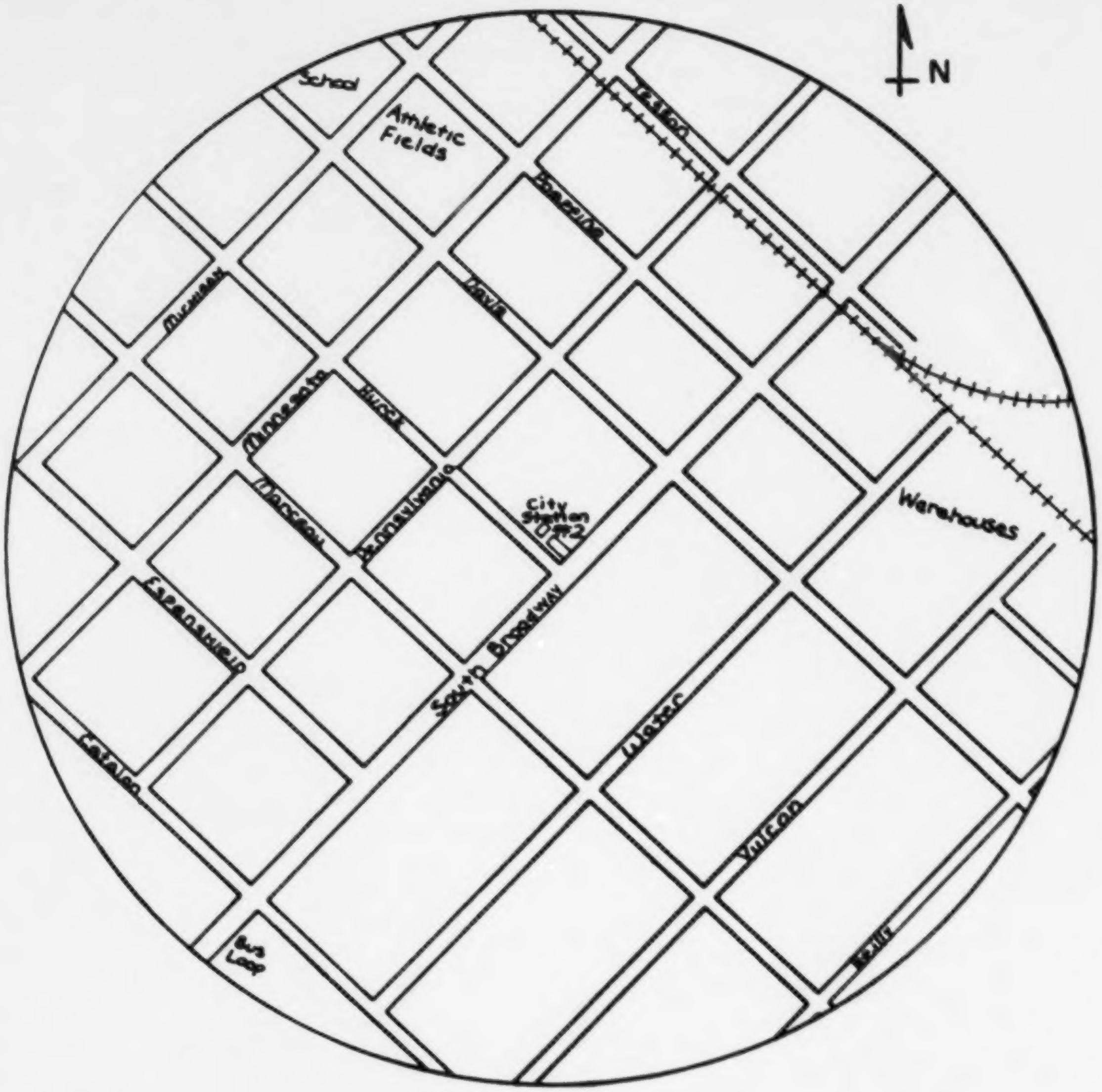
Source	Distance	Description
South Broadway	10 ft	11,830 ADT
Hurck	25 ft	1500 ADT

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1977	109	50
1976	109	74
1975	106	98
1974	123	102
1973	116	55


CHANNEL
Carondelet
Mile 174
U S Coast Guard
MISSOURI
ILLINOIS
Mile 173
Broadway
ST LOUIS CITY
ST CLAIR CO
Chemical Tanks
RIVER
Prairie

One mile radius around South Broadway and Hurck site.


N
School
Athletic Fields
Michigan
Davis
Minnesota
Hurck
Marceau
Pennsylvania
City Station #2
Espenschied
South Broadway
Catalan
Bus Loop
Water
Vulcan
Warehouses

One-quarter mile radius around South Broadway and Hurck site.

Viewed to the east.

Viewed to the northwest.
Sampler at South Broadway and Hurck.

POINT SOURCE SUMMARY

STATION(12): BROADWAY & HURCK
NAME:
ADDRESS:
UTM ZONE: 15 UTMV: 4269.2

ELEVATION: 0 FT.
UTMH: 738.4

STACKS WITHIN 5 MILE RADIUS

PLANT	PLANT-STACK-CODE		SIC	UTM ZONE	UTMV	UTMH	ANGLE	DIST (MI.)	STK HT (FT)	PARTICULATE EMIS(TONS)
GREAT LAKES CARBON	26-4280-12	-01	3312	15	738.75	4268.73	143	.76	200	2.81
GREAT LAKES CARBON	26-4280-12	-02	3312	15	738.63	4268.60	155	.40	200	16.88
N L INDUSTRIES	26-4300-09	-10	2816	15	738.45	4268.20	177	.62	123	1.50
N L INDUSTRIES	26-4300-09	-11	2816	15	738.45	4268.14	177	.66	100	1.50
N L INDUSTRIES	26-4300-09	-13	2816	15	738.41	4268.14	179	.66	123	.02
N L INDUSTRIES	26-4300-09	-04	2816	15	738.61	4268.09	169	.70	69	.35
N L INDUSTRIES	26-4300-09	-05	2816	15	738.61	4268.10	169	.70	69	4.99
N L INDUSTRIES	26-4300-09	-18	2816	15	738.60	4268.09	169	.70	68	43.48
N L INDUSTRIES	26-4300-09	-01	2816	15	738.59	4268.08	170	.71	68	79.69
N L INDUSTRIES	26-4300-09	-02	2816	15	738.59	4268.07	170	.71	68	101.23
N L INDUSTRIES	26-4300-09	-03	2816	15	738.61	4268.08	169	.71	69	.35
N L INDUSTRIES	26-4300-09	-06	2816	15	738.61	4268.08	169	.71	83	166.64
VA HOSPITAL JEFF BARRAC	26-4300-14	-01	9100	15	737.16	4264.12	193	3.25	200	1.04
COLUMBIA QUARRY PLT 9	14-6900-04	-01	1422	15	742.30	4265.50	133	3.34	20	16.75
COLUMBIA QUARRY PLT 9	14-6900-04	-02	1422	15	742.30	4265.50	133	3.34	20	17.62
COLUMBIA QUARRY PLT 9	14-6900-04	-03	1422	15	742.30	4265.50	133	3.34	20	335.00
COLUMBIA QUARRY PLT 9	14-6900-04	-04	1422	15	742.30	4265.50	133	3.34	20	2375.00
MUNICIPAL INCINERATOR S	26-4280-25	-01	4953	15	741.83	4273.51	38	3.42	250	79.73
MUNICIPAL INCINERATOR S	26-4280-25	-02	4953	15	741.84	4273.50	38	3.42	250	79.73
ALPHA PORTLAND CEMENT	26-4300-01	-01	3241	15	733.08	4267.72	254	3.43	272	113.85
COLUMBIA QUARRY PLT #1	14-6900-12	-02	1422	15	745.50	4269.60	86	4.42	20	45.50
COLUMBIA QUARRY PLT #1	14-6900-12	-03	1422	15	745.50	4269.60	86	4.42	20	55.00
BUSSEN QUARRY	26-4300-33	-01	1422	15	736.80	4262.10	192	4.52	15	37.50
BUSSEN QUARRY	26-4300-33	-02	1422	15	736.80	4262.10	192	4.52	15	112.50
BUSSEN QUARRY	26-4300-33	-03	1422	15	736.80	4262.10	192	4.52	15	150.00
BUSSEN QUARRY	26-4300-33	-04	1422	15	736.80	4262.10	192	4.52	15	1500.00
BUSSEN QUARRY	26-4300-33	-04	1422	15	736.80	4262.10	192	4.52	15	1500.00
ANHEUSER BUSCH INC	26-4280-03	-02	2082	15	742.77	4275.48	34	4.75	225	7.53
ANHEUSER BUSCH INC	26-4280-03	-01	2082	15	742.80	4275.52	34	4.79	225	8.07
ANHEUSER BUSCH INC	26-4280-03	-04	2082	15	742.86	4275.51	35	4.80	75	5.57
ANHEUSER BUSCH INC	26-4280-03	-05	2082	15	742.84	4275.53	35	4.86	100	2.46
ANHEUSER BUSCH INC	26-4280-03	-03	2082	15	742.82	4275.56	34	4.81	225	38.33

POINT SOURCE SUMMARY (Continued)

STATION(11): 14TH & PARK CONTINUED

PLANT	PLANT-STACK CODE		SIC	UTM ZONE	UTMV	UTMH	ANGLE	DIST (MI.)	STK HT (FT)	PARTICULATE EMIS(TONS)
UNION ELECTRIC CO VENIC	14-4680-03	-06	4911	15	745.52	4283.11	24	2.88	237	.04
UNION ELECTRIC CO VENIC	14-4680-03	-07	4911	15	745.52	4283.13	24	2.89	237	757.04
UNION ELECTRIC CO VENIC	14-4680-03	-08	4911	15	745.52	4283.15	24	2.90	237	997.73
NUTRENA MILLS	14-6980-17	-03	2043	15	748.30	4277.30	102	3.09	20	.50
CERTAIN-TEED	14-6980-26	-01	2952	15	748.42	4277.27	108	3.16	50	1.27
MUNICIPAL INCINERATOR N	26-4280-24	-01	4953	15	743.88	4284.15	3	3.27	250	79.73
MUNICIPAL INCINERATOR N	26-4280-24	-02	4953	15	743.91	4284.15	3	3.27	250	79.73
HUNTER PACKING CO	14-6980-19	-01	2011	15	748.70	4280.40	73	3.30	163	.30
HUNTER PACKING CO	14-6980-19	-02	2011	15	748.70	4280.40	73	3.30	163	.30
WASH. UNIV. EUCLID PWR	26-4280-40	-01	4911	15	738.32	4279.65	278	3.31	178	396.13
OBEAR NESTER GLASS	14-6980-27	-01	3221	15	748.70	4277.00	110	3.38	200	6.77
OBEAR NESTER GLASS	14-6980-27	-10	3221	15	748.70	4277.00	110	3.38	67	63.00
PROCTER AND GAMBLE	26-4280-57	-02	2841	15	743.70	4284.35	1	3.39	100	1.03
OBEAR NESTER GLASS	14-6980-27	-09	3221	15	748.81	4276.90	111	3.47	48	52.50
OBEAR NESTER GLASS	14-6980-27	-11	3221	15	748.86	4276.90	110	3.50	90	77.00
BANNER IRON WORKS	26-4280-59	-01	3321	15	738.10	4277.61	256	3.51	85	12.75
MUNICIPAL INCINERATOR S	26-4280-25	-01	4953	15	741.83	4273.51	198	3.53	250	79.73
MUNICIPAL INCINERATOR S	26-4280-25	-02	4953	15	741.84	4273.50	198	3.53	250	79.73
MOSS AMERICAN INC	14-4680-31	-01	2491	15	747.50	4283.84	38	3.91	35	5.76
CONSOLIDATED ALUMINUM C	14-4680-27	-02	3334	15	746.45	4285.45	23	4.44	75	.22
GENERAL MOTORS ASSEMBLY	26-4280-06	-01	3711	15	738.26	4284.80	317	4.94	225	13.19

AREA SOURCE SUMMARY

Site: South Broadway and Hurck

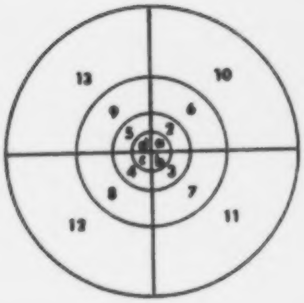
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		4.7	2.9	2.9	1.5	1.7	7.5	4.0	2.0	0.3	27.5
Res/Com/Ind fuel		0.6	0.5	0.4	0.2	0.3	9.1	0.8	0.7	1.5	14.1
Incinerators											
Rail/Air/Vessel		0.09	0.09	0.4	0.09	0.006	1.3	1.6	0.4	0.02	4.0
Auto exhaust	51.0x10^6VMT	2.6	1.8	0.1	0.8	2.2	7.9		3.7	14.6	33.7
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards	13.8 ac								1.4		1.4
Clean streets	50.8x10^6VMT	13.6	9.2		4.2	11.2	40.9		19.1	75.4	173.6
Comm streets	0.2x10^6VMT			3.1							3.1
Unpaved roads											
Cleared areas	110 ac		0.4	2.1			1.8	0.7	0.8	0.7	6.5
Construction	1.8 ac	7.6									7.6
Agriculture	81 ac						0.2	1.9			2.1
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	7.4	15.9	55.4	78.7
IND PROCESSES				
FUGITIVE DUST	21.2	30.2	142.9	194.3
Total	28.6	46.1	198.3	273.0

DESCRIPTION OF SITE

SAROAD code - RAMS 103

Location - Bend Road



Monitor height - 13 ft, on roof of trailer

Land use, by sector -

1a agriculture
1b agriculture
1c agriculture
1d agriculture

2 undeveloped
3 agriculture
4 agriculture
5 agriculture

6 agriculture
7 agriculture
8 light industry
9 light industry

10 agriculture
11 dense residential
12 central commercial
13 central commercial

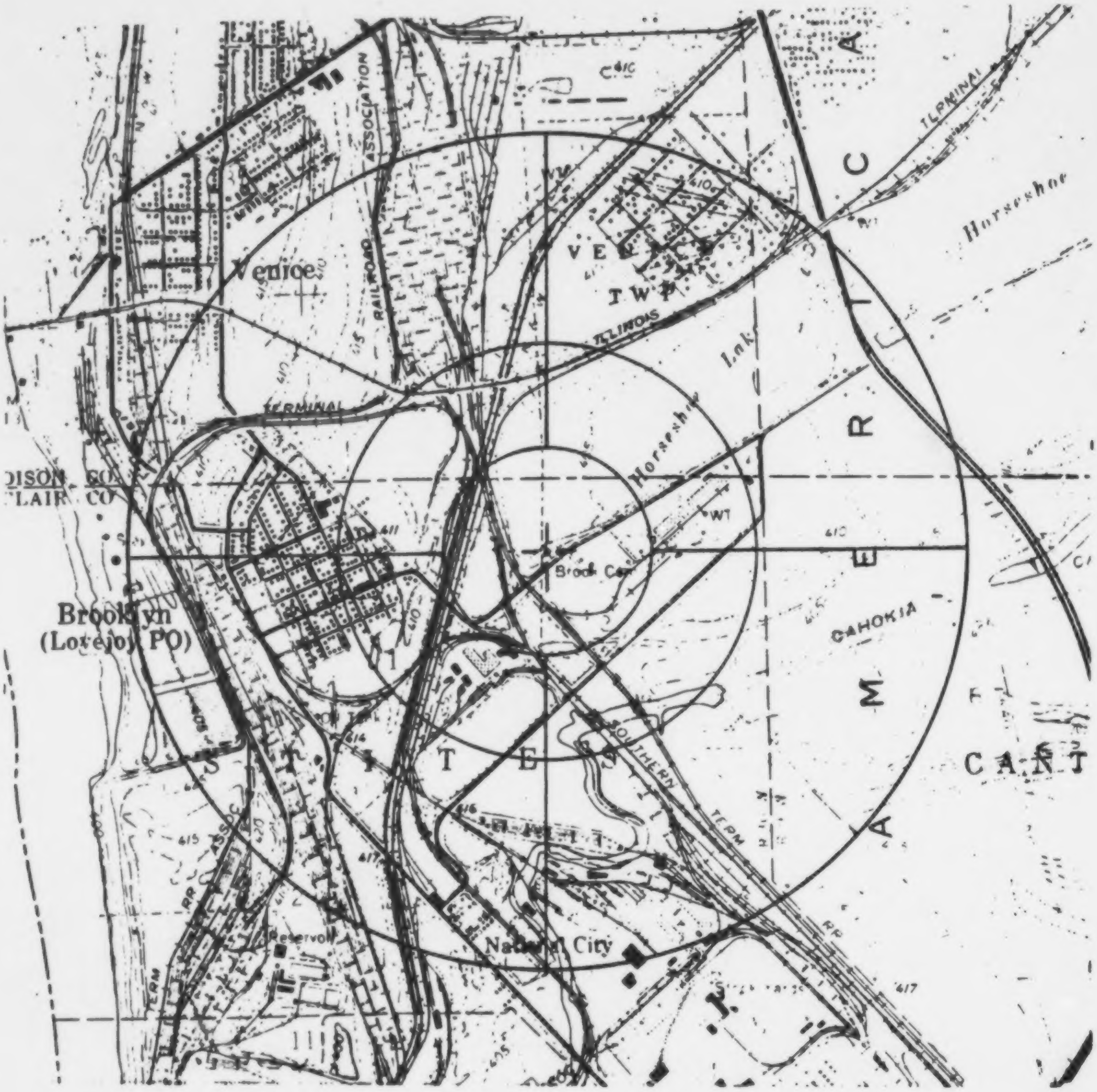
Topography - no special terrain

Localized sources, within 200 ft of monitor -

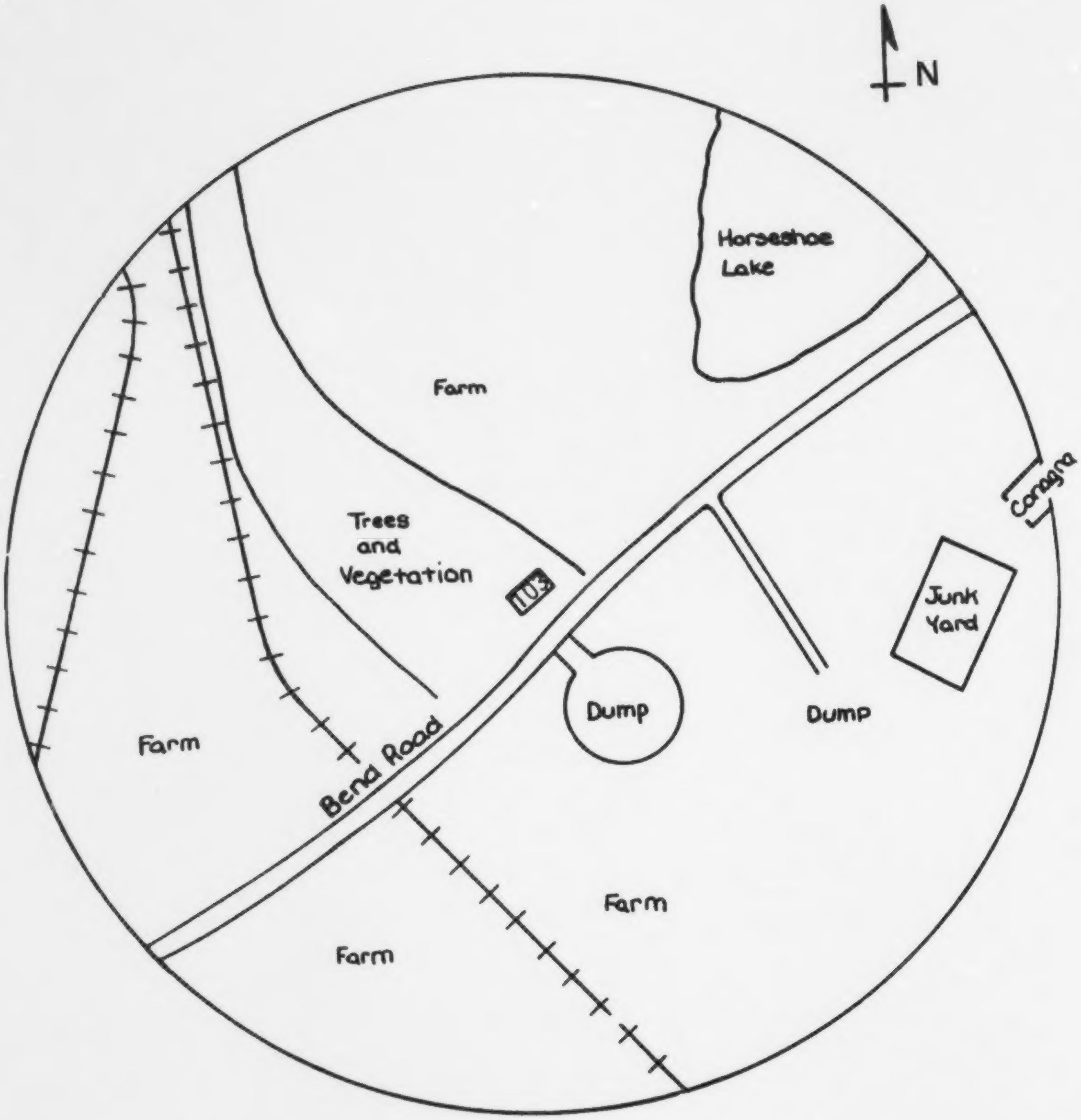
Source	Distance	Description
Bend Road	20 ft	400 ADT

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	91	This information was not available
1975	91	


Venice
VENICE
TWP
ILLINOIS
TERMINAL
RAILROAD
ASSOCIATION
Horseshoe
Horseshoe Lake
Brooklyn
(Lovejoy PO)
CAHOKIA
National City
Reservoir
SOUTHERN
TERM
RR
A
M
E
R
I
C
A
S
T
A
T
E
S
CANT
WT
410
411
415
416
417

One mile radius around RAMS 103, Bend Road site.


N
Horseshoe Lake
Farm
Trees and Vegetation
103
Conagra
Junk Yard
Dump
Dump
Bend Road
Farm
Farm
Farm

One-quarter mile radius around RAMS 103, Bend Road site.

Viewed to the south-southeast.

Viewed to the north-northwest.
Sampler at RAMS 103, Bend Road.

POINT SOURCE SUMMARY

STATION(1): RAMS 103
NAME:
ADDRESS:
UTM ZONE: 15 UTMV: 4282.5 UTMH: 747.6
ELEVATION: 0 FT.

STACKS WITHIN 5 MILE RADIUS

PLANT	PLANT-STACK-CODE		SIC	UTM ZONE	UTMV	UTMH	ANGLE	DIST (MI.)	STK HT (FT)	PARTICULATE EMIS(TONS)
MOSS AMERICAN INC	14-4680-31	-01	2491	15	747.50	4283.84	355	.83	35	5.76
SWIFT & CO NATIONAL CIT	14-6900-02	-01	2013	15	747.81	4280.80	172	1.06	250	.92
UNION ELECTRIC CO VENIC	14-4680-03	-01	4911	15	745.52	4283.01	283	1.33	237	1.29
UNION ELECTRIC CO VENIC	14-4680-03	-02	4911	15	745.52	4283.03	284	1.33	237	.89
UNION ELECTRIC CO VENIC	14-4680-03	-03	4911	15	745.52	4283.05	284	1.34	237	.74
UNION ELECTRIC CO VENIC	14-4680-03	-04	4911	15	745.52	4283.07	285	1.34	237	.30
UNION ELECTRIC CO VENIC	14-4680-03	-05	4911	15	745.52	4283.09	285	1.34	237	.06
UNION ELECTRIC CO VENIC	14-4680-03	-06	4911	15	745.52	4283.11	286	1.35	237	.04
UNION ELECTRIC CO VENIC	14-4680-03	-07	4911	15	745.52	4283.13	286	1.35	237	757.04
UNION ELECTRIC CO VENIC	14-4680-03	-08	4911	15	745.52	4283.15	287	1.35	237	997.73
HUNTER PACKING CO	14-6900-19	-01	2011	15	748.70	4280.40	152	1.47	163	.30
HUNTER PACKING CO	14-6900-19	-02	2011	15	748.70	4280.40	152	1.47	163	.30
PVO INTERNATIONAL	26-4280-58	-03	2079	15	744.82	4282.69	273	1.73	70	46.87
PVO INTERNATIONAL	26-4280-58	-01	2079	15	744.81	4282.71	274	1.74	70	106.47
PVO INTERNATIONAL	26-4280-58	-02	2079	15	744.81	4282.70	274	1.74	70	218.37
CONSOLIDATED ALUMINUM C	14-4680-27	-02	3334	15	746.45	4285.45	338	1.97	75	.22
MALLINCKRODT CHEM	26-4280-17	-05	2899	15	744.27	4282.87	276	2.06	80	3.12
MALLINCKRODT CHEM	26-4280-17	-04	2899	15	744.26	4282.88	276	2.09	121	47.10
MALLINCKRODT CHEM	26-4280-17	-01	2899	15	744.25	4282.90	276	2.10	175	2.50
UNION ELECTRIC	26-4280-38	-01	4911	15	745.20	4280.01	223	2.15	180	2.56
REILLY TAR & CHEM	14-4680-36	-01	2865	15	748.90	4286.00	20	2.32	27	.47
REILLY TAR & CHEM	14-4680-36	-02	2865	15	748.91	4286.00	20	2.32	28	.15
CONTINENTAL GRAIN CO	14-6900-20	-01	2041	15	745.95	4278.95	204	2.43	15	24.79
CONTINENTAL GRAIN CO	14-6900-20	-02	2041	15	745.95	4278.95	204	2.43	15	56.07
MUNICIPAL INCINERATOR N	26-4280-24	-02	4953	15	743.91	4284.15	294	2.51	250	79.73
GRANITE CITY STEEL	14-4680-09	-10	3312	15	748.40	4286.50	11	2.53	160	205.00
GRANITE CITY STEEL	14-4680-09	-13	3312	15	748.40	4286.50	11	2.53	175	37.00
GRANITE CITY STEEL	14-4680-09	-14	3312	15	748.40	4286.50	11	2.53	100	51.00
GRANITE CITY STEEL	14-4680-09	-19	3312	15	748.40	4286.50	11	2.53	225	12.00
GRANITE CITY STEEL	14-4680-09	-20	3312	15	748.40	4286.50	11	2.53	200	5.00
MUNICIPAL INCINERATOR N	26-4280-24	-01	4953	15	743.88	4284.15	293	2.53	250	79.73
GRANITE CITY STEEL	14-4680-09	-01	3312	15	749.50	4286.30	26	2.64	250	63.00
GRANITE CITY STEEL	14-4680-09	-02	3312	15	749.50	4286.30	26	2.64	250	114.00
GRANITE CITY STEEL	14-4680-09	-03	3312	15	749.50	4286.30	26	2.64	261	143.00
GRANITE CITY STEEL	14-4680-09	-07	3312	15	749.50	4286.30	26	2.64	100	26.00
GRANITE CITY STEEL	14-4680-09	-08	3312	15	749.50	4286.30	26	2.64	107	595.00
GRANITE CITY STEEL	14-4680-09	-09	3312	15	749.50	4286.30	26	2.64	150	112.00
N L INDUSTRIES	14-4680-11	-01	3341	15	747.20	4286.80	354	2.68	140	4.61
N L INDUSTRIES	14-4680-11	-02	3341	15	747.20	4286.80	354	2.68	45	4.61
PROCTER AND GAMBLE	26-4280-57	-02	2841	15	743.70	4284.35	295	2.68	100	1.03
FINLEY PLATING CO	14-4680-23	-01	3471	15	747.76	4286.87	2	2.72	75	.01
GRANITE CITY STEEL	14-4680-09	-05	3312	15	749.80	4286.30	30	2.73	150	46.00

POINT SOURCE SUMMARY (Continued)

STATION(1): RAPS 103 CONTINUED

PLANT	PLANT-STACK CODE		SIC	UTM ZONE	UTMV	UTMH	ANGLE	DIST (MI.)	STK HT (FT)	PARTICULATE EMIS(TONS)
GRANITE CITY STEEL	14-4680-09	-06	3312	15	749.80	4286.30	30	2.73	150	44.00
GRANITE CITY STEEL	14-4680-09	-21	3312	15	749.80	4286.30	30	2.73	108	18.00
GRANITE CITY STEEL	14-4680-09	-22	3312	15	749.80	4286.30	30	2.73	151	14.00
GRANITE CITY STEEL	14-4680-09	-23	3312	15	749.80	4286.30	30	2.73	151	14.00
GRANITE CITY ARMY DEPOT	14-4680-17	-02	9190	15	746.12	4286.79	340	2.82	56	2.24
GRANITE CITY ARMY DEPOT	14-4680-17	-03	9190	15	746.10	4286.79	340	2.82	56	.80
MORRIS PAINT & VARNISH	14-6900-16	-01	2851	15	747.96	4277.96	175	2.83	40	3.90
AMERICAN STEEL FOUNDRY	14-4680-08	-03	3493	15	746.95	4287.28	352	3.00	200	11.21
AMERICAN STEEL FOUNDRY	14-4680-08	-01	3493	15	747.00	4287.30	352	3.01	41	39.49
AMERICAN STEEL FOUNDRY	14-4680-08	-02	3493	15	747.00	4287.30	352	3.01	41	39.49
NESTLE CO. INC.	14-4680-12	-04	2099	15	747.71	4287.72	1	3.24	48	1.94
NESTLE CO. INC.	14-4680-12	-03	2099	15	747.70	4287.73	1	3.25	48	6.34
NESTLE CO. INC.	14-4680-12	-01	2099	15	747.68	4287.75	0	3.26	48	1.69
NESTLE CO. INC.	14-4680-12	-02	2099	15	747.69	4287.74	0	3.26	48	1.53
NUTRENA MILLS	14-6900-17	-03	2043	15	748.30	4277.30	172	3.26	20	.50
CERTAIN-TEED	14-6900-26	-01	2952	15	748.42	4277.27	171	3.29	50	1.27
ALLIED CHEMICAL CORP	14-6900-34	-01	2813	15	753.00	4281.30	102	3.44	25	.53
ALLIED CHEMICAL CORP	14-6900-34	-02	2813	15	753.00	4281.30	102	3.44	12	7.11
OBEAR NESTER GLASS	14-6900-27	-01	3221	15	748.70	4277.00	168	3.49	200	8.77
OBEAR NESTER GLASS	14-6900-27	-10	3221	15	748.70	4277.00	168	3.49	67	63.00
OBEAR NESTER GLASS	14-6900-27	-09	3221	15	748.81	4276.90	167	3.56	48	52.50
OBEAR NESTER GLASS	14-6900-27	-11	3221	15	748.86	4276.90	167	3.57	90	77.00
UNION ELECTRIC CAHOKIA	14-6900-14	-01	4911	15	745.10	4276.34	202	4.13	328	1.01
UNION ELECTRIC CAHOKIA	14-6900-14	-02	4911	15	745.13	4276.33	201	4.13	328	1.17
UNION ELECTRIC CAHOKIA	14-6900-14	-03	4911	15	745.08	4276.29	202	4.16	328	.48
UNION ELECTRIC CAHOKIA	14-6900-14	-04	4911	15	745.12	4276.28	201	4.16	328	.35
UNION ELECTRIC CAHOKIA	14-6900-14	-05	4911	15	745.06	4276.25	202	4.19	328	5.79
UNION ELECTRIC CAHOKIA	14-6900-14	-06	4911	15	745.10	4276.24	201	4.19	328	5.97
MONSANTO CO	14-6900-06	-10	2819	15	746.68	4275.65	187	4.29	140	121.72
MONSANTO CO	14-6900-06	-07	2819	15	746.70	4275.60	187	4.32	140	18.31
MONSANTO CO	14-6900-06	-08	2819	15	746.72	4275.65	187	4.32	140	24.45
MONSANTO CO	14-6900-06	-09	2819	15	746.74	4275.60	187	4.32	140	26.59
MONSANTO CO	26-4280-23	-02	2899	15	743.98	4276.56	211	4.32	150	1.89
MONSANTO CO	26-4280-23	-03	2899	15	743.99	4276.55	211	4.32	150	1.86
MONSANTO CO	14-6900-06	-05	2819	15	746.66	4275.60	187	4.33	140	1.99
MONSANTO CO	14-6900-06	-06	2819	15	746.68	4275.60	187	4.33	140	2.01
MONSANTO CO	26-4280-23	-04	2899	15	744.00	4276.54	211	4.33	150	.43
MONSANTO CO	26-4280-23	-05	2899	15	744.01	4276.53	211	4.33	150	.52
VA HOSPITAL COCHRAN	26-4280-56	-01	9110	15	740.65	4280.56	253	4.36	43	.62
MONSANTO CO	26-4280-23	-06	2899	15	744.10	4276.35	209	4.40	150	226.09
A O SMITH	14-4680-37	-01	3714	15	746.35	4289.80	5	4.56	30	.54
CERRO COPPER PRODUCTS	14-6900-25	-01	3351	15	746.14	4275.07	191	4.71	60	.09
CERRO COPPER PRODUCTS	14-6900-25	-02	3351	15	746.14	4275.07	191	4.71	60	.09
CERRO COPPER PRODUCTS	14-6900-25	-03	3351	15	746.14	4275.07	191	4.71	60	.09

AREA SOURCE SUMMARY

Site: RAMS 103, Bend Road

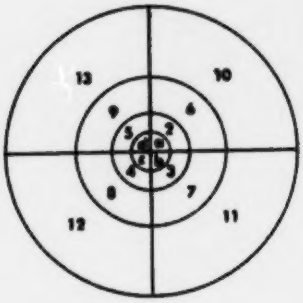
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		3.4	1.9	2.6	2.2	1.5	3.4	10.4	3.5	0.09	29.0
Res/Com/Ind fuel		12.5	6.9	9.4	8.1	5.3	21.2	37.5	15.2	2.3	118.4
Incinerators											
Rail/Air/Vessel		24.1	13.7	18.1	15.5	10.5	26.1	72.5	25.7	4.2	210.4
Auto exhaust	7.7×10^4 VMT						3.6		0.7	0.4	4.8
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards	1800 ac	0.7		0.2	1.2	2.2	0.4	0.8	6.0	6.2	17.7
Clean streets	7.7×10^6 VMT	0.2	0.1	0.2	0.4		18.7	0.3	4.2	2.0	26.1
Comm streets	4.4×10^4 VMT		0.6								0.6
Unpaved roads	1.0×10^5 VMT							140.4			140.4
Cleared areas	78.80 ac		2.3				2.4				4.7
Construction											
Agriculture	590 ac	1.9	0.3	1.5	0.7	0.7	1.6	4.7	1.6	2.5	15.5
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	40.0	95.8	226.8	362.6
IND PROCESSES				
FUGITIVE DUST	2.8	10.5	191.8	205.1
Total	42.8	106.3	418.6	567.7

DESCRIPTION OF SITE

SAROAD code - RAMS 105

Location - Seventh and Shenandoah



Monitor height - 13 ft, on roof of trailer

Land use, by sector -

1a suburban commercial
1b suburban commercial
1c suburban commercial
1d dense residential

2 central commercial
3 light industry
4 light industry
5 dense residential

6 light industry
7 undeveloped
8 light industry
9 dense residential

10 central commercial
11 general industry
12 dense residential
13 dense residential

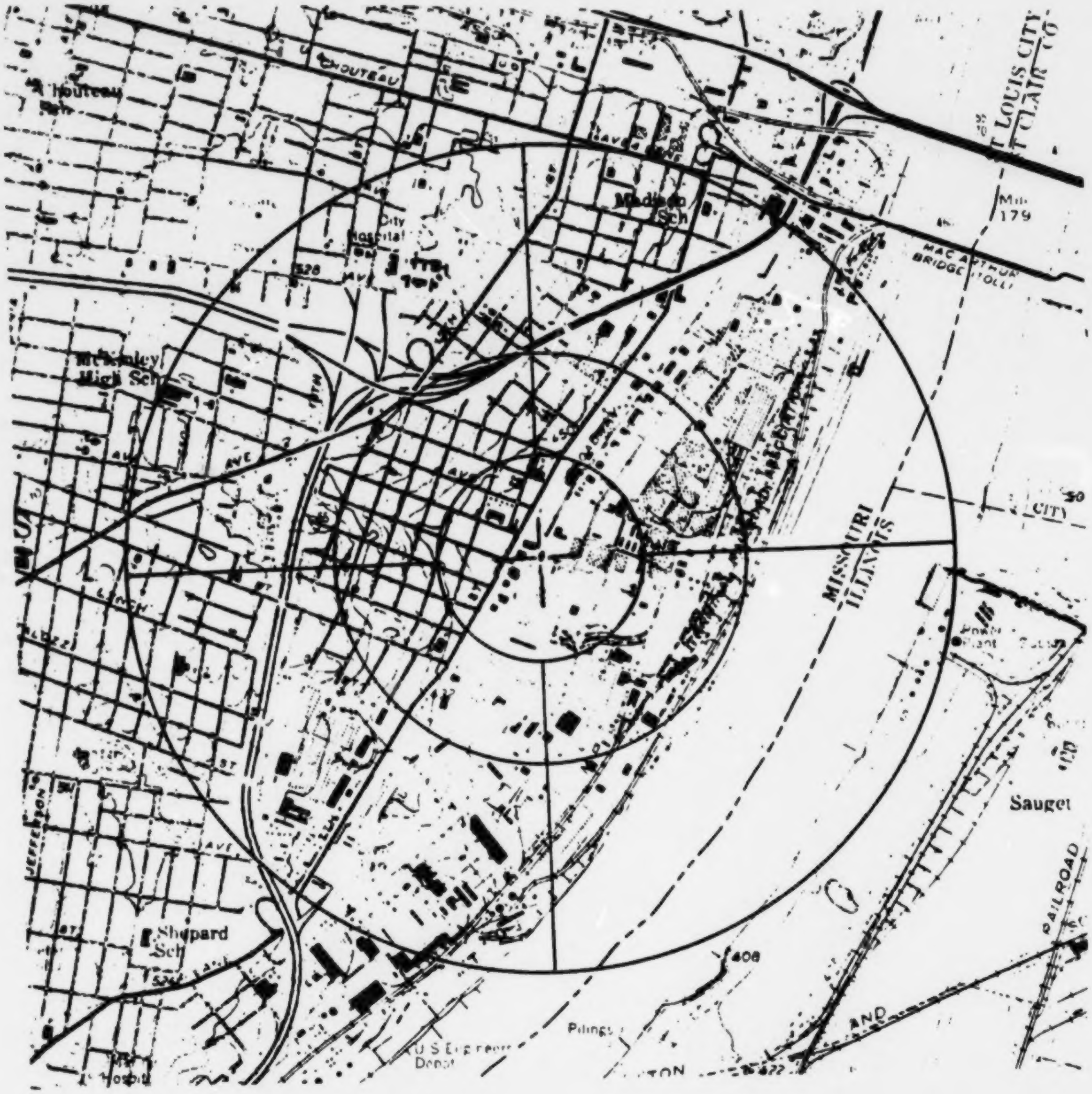
Topography - no special terrain

Localized sources, within 200 ft of monitor -

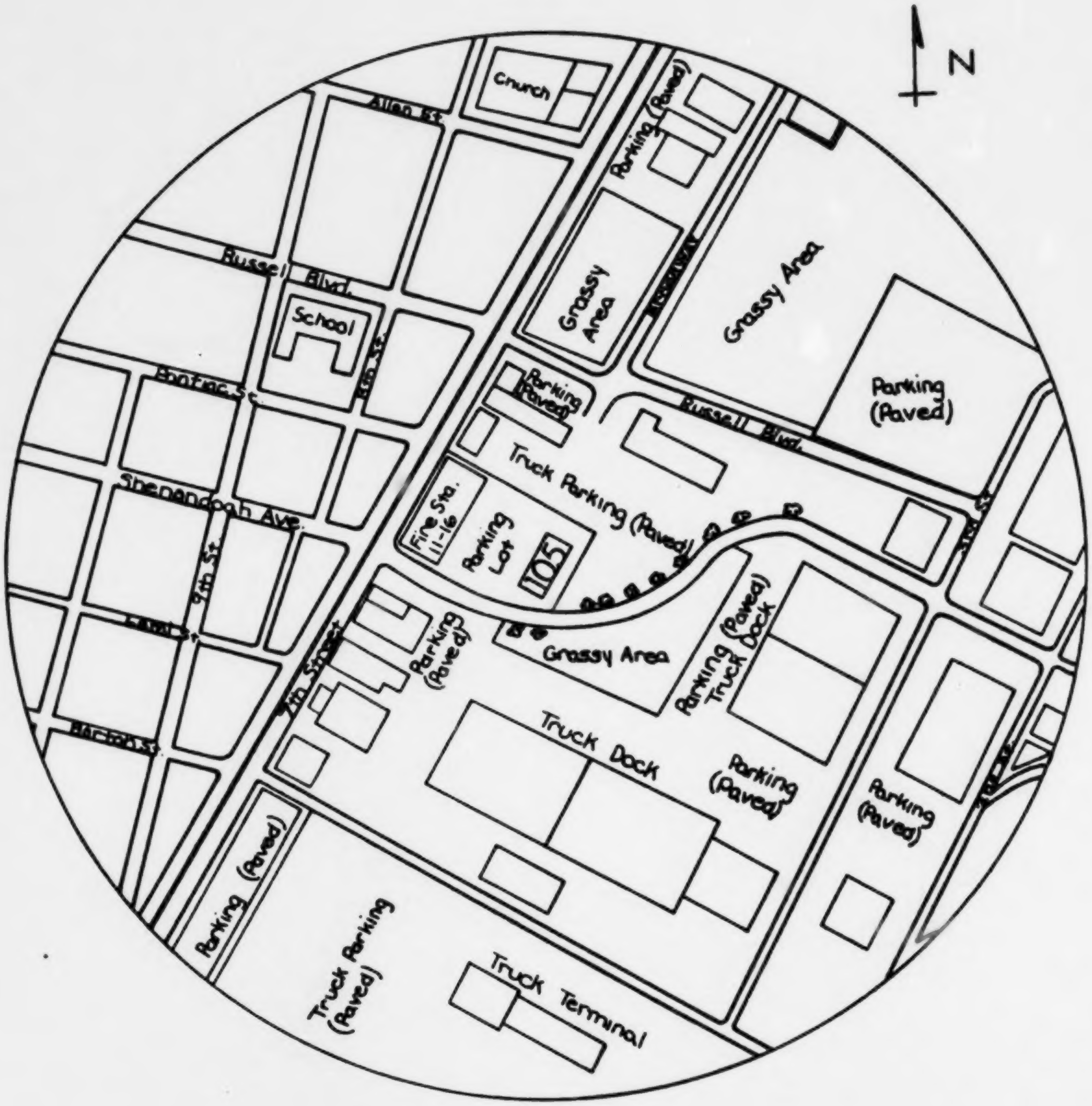
Source	Distance	Description
Shenandoah Street	18 ft	3000 ADT

Air quality data -

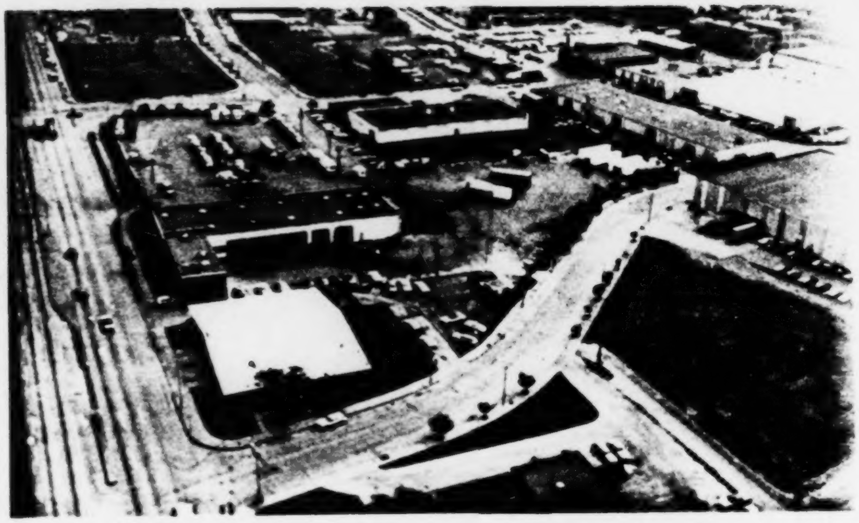
Year	Annual geometric mean, ug/m^3	No. of samples
1976	83	This information was not available
1975	81	


CHOUTEAU
Madison Sch
City Hospital
McKinley High Sch
ST LOUIS CITY
ST CLAIR CO
Mile 179
MAC ARTHUR BRIDGE (TOLL)
CITY
MISSOURI
ILLINOIS
Power Plant
Sauget
RAILROAD
Shepard Sch
JEFFERSON
408
Pilings
U S Engineer Depot
422

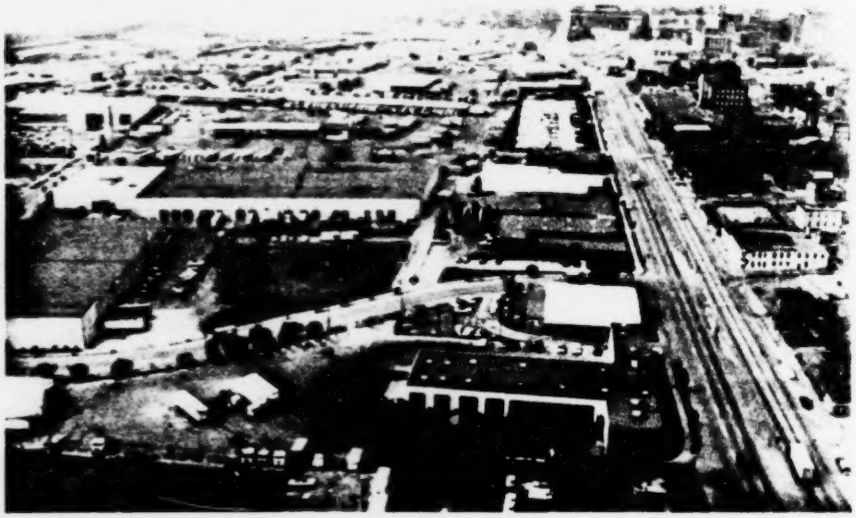
One mile radius around RAMS 105, Seventh and Shenandoah site.


N
Church
Allen St.
Parking (Paved)
Russel Blvd.
School
8th St.
Pontiac St.
Shenandoah Ave.
9th St.
7th Street
Grassy Area
Grassy Area
Parking (Paved)
Parking (Paved)
Russell Blvd.
Truck Parking (Paved)
Fire Sta. 11-16
Parking Lot
105
Parking (Paved)
Grassy Area
Parking (Paved) Truck Dock
Truck Dock
Parking (Paved)
Parking (Paved)
Parking (Paved)
Truck Parking (Paved)
Truck Terminal

One-quarter mile radius around RAMS 105, Seventh and Shenandoah site.



Viewed to the north-northeast.



Viewed to the south-southeast.
Sampler at RAMS 105, Seventh and Shenandoah.

POINT SOURCE SUMMARY

```
                 STATION( 2): RAMS 105
                      NAME:                                 ELEVATION:    0 FT.
                      ADDRESS:
                      UTM ZONE: 15     UTMV:  4276.5     UTMH: 743.7

                                   STACKS WITHIN 5 MILE RADIUS

                                                                  UTM                                       DIST  STK HT     PARTICULATE
                 PLANT                          PLANT-STACK-CODE        SIC   ZONE     UTMV      UTMH     ANGLE   (MI.)   (FT)         EMIS(TONS)

          MONSANTO CO                           26-4280-23   -02      2899    15     743.98   4276.56      77      .18     150             1.89
          MONSANTO CO                           26-4280-23   -03      2899    15     743.99   4276.55      80      .18     150             1.86
          MONSANTO CO                           26-4280-23   -04      2899    15     744.00   4276.54      82      .19     150              .43
          MONSANTO CO                           26-4280-23   -05      2899    15     744.01   4276.53      84      .19     150              .52
          MONSANTO CO                           26-4280-23   -06      2899    15     744.10   4276.35     110      .27     150           226.09
          ANHEUSER BUSCH INC                    26-4280-03   -03      2082    15     742.82   4275.56     223      .80     225            38.33
          ANHEUSER BUSCH INC                    26-4280-03   -04      2082    15     742.86   4275.51     220      .81      75             5.57
          ANHEUSER BUSCH INC                    26-4280-03   -05      2082    15     742.84   4275.53     221      .81     100             2.46
          ANHEUSER BUSCH INC                    26-4280-03   -01      2082    15     742.84   4275.52     222      .83     225             8.07
          UNION ELECTRIC CAHOKIA                14-6900-14   -05      4911    15     745.06   4276.25     100      .86     328             5.79
          ANHEUSER BUSCH INC                    26-4280-03   -02      2082    15     742.77   4275.48     222      .86     225             7.53
          UNION ELECTRIC CAHOKIA                14-6900-14   -03      4911    15     745.08   4276.29      98      .87     328              .48
          UNION ELECTRIC CAHOKIA                14-6900-14   -01      4911    15     745.10   4276.34      96      .88     328             1.01
          UNION ELECTRIC CAHOKIA                14-6900-14   -06      4911    15     745.10   4276.24     100      .88     328             5.97
          UNION ELECTRIC CAHOKIA                14-6900-14   -02      4911    15     745.13   4276.33      96      .89     328             1.17
          UNION ELECTRIC CAHOKIA                14-6900-14   -04      4911    15     745.12   4276.28      98      .89     328              .35
          CEFRO COPPER PRODUCTS                 14-6900-25   -01      3351    15     746.14   4275.07     120     1.76      60              .09
          CERRO COPPER PRODUCTS                 14-6900-25   -02      3351    15     746.14   4275.07     120     1.76      60              .09
          CERRO COPPER PRODUCTS                 14-6900-25   -03      3351    15     746.14   4275.07     120     1.76      60              .09
          MONSANTO CO                           14-6900-06   -05      2819    15     746.66   4275.60     106     1.92     140             1.99
          MONSANTO CO                           14-6900-06   -06      2819    15     746.68   4275.60     106     1.93     140             2.01
          MONSANTO CO                           14-6900-06   -10      2819    15     746.68   4275.65     105     1.93     140           121.72
          MONSANTO CO                           14-6900-06   -07      2819    15     746.70   4275.60     106     1.95     140            18.31
          MONSANTO CO                           14-6900-06   -08      2819    15     746.72   4275.60     106     1.96     140            24.45
          MONSANTO CO                           14-6900-06   -09      2819    15     746.74   4275.60     106     1.97     140            26.59
          CONTINENTAL GRAIN CO                  14-6900-20   -01      2041    15     745.95   4278.95      42     2.07      15            24.79
          CONTINENTAL GRAIN CO                  14-6900-20   -02      2041    15     745.95   4278.95      42     2.07      15            52.07
          MUNICIPAL INCINERATOR S               26-4280-25   -01      4953    15     741.83   4273.51     212     2.19     250            79.73
          MUNICIPAL INCINERATOR S               26-4280-25   -02      4953    15     741.84   4273.50     211     2.19     250            79.73
         UNION ELECTRIC                         26-4280-38   -01      4911    15     745.20   4280.61      23     2.37     180             2.56
         MORRIS PAINT & VARNISH                 14-6900-16   -01      2851    15     747.96   4277.96      71     2.80      40             3.90
          NUTRENA MILLS                         14-6900-17   -03      2043    15     746.32   4277.30      80     2.90      20              .50
          CERTAIN-TEED                          14-6900-26   -01      2952    15     748.42   4277.27      80     2.97      50             1.27
          VA HOSPITAL   COCHRAN                 26-4280-56   -01      9100    15     740.65   4280.56     324     3.08      43              .62
          OBEAR NESTER GLASS                    14-6900-27   -01      3221    15     748.70   4277.00      84     3.12     200             8.77
          OBEAR NESTER GLASS                    14-6900-27   -10      3221    15     748.70   4277.00      84     3.12      67            63.00
          OBEAR NESTER GLASS                    14-6900-27   -09      3221    15     748.61   4276.90      85     3.18      48            52.50
          OBEAR NESTER GLASS                    14-6900-27   -11      3221    15     748.66   4276.90      85     3.22      90            77.00
          BANNER IRON WORKS                     26-4280-59   -01      3321    15     738.10   4277.61     281     3.55      85            12.75
          SWIFT & CO NATIONAL CIT               14-6900-02   -01      2013    15     747.81   4280.80      43     3.70     250              .92
          WASH. UNIV. EUCLID PWR                26-4280-40   -01      4911    15     738.32   4279.65     300     3.87     178           396.13
         PVO INTERNATIONAL                      26-4280-58   -02      2079    15     744.81   4282.70      10     3.91      70           218.37
```

POINT SOURCE SUMMARY (Continued)

STATION(2): RAPS 105 CONTINUED

PLANT	PLANT-STACK CODE		SIC	UTM ZONE	UTMV	UTMH	ANGLE	DIST (MI.)	STK HT (FT)	PARTICULATE EMIS(TONS)
PVO INTERNATIONAL	26-4280-58	-03	2079	15	744.82	4282.69	10	3.91	70	46.87
PVO INTERNATIONAL	26-4280-58	-01	2079	15	744.81	4282.71	10	3.92	70	106.47
HUNTER PACKING CO	14-6900-19	-01	2011	15	748.70	4280.40	52	3.94	163	.30
HUNTER PACKING CO	14-6900-19	-02	2011	15	748.70	4280.40	52	3.94	163	.30
MALLINCKRODT CHEM	26-4280-17	-05	2899	15	744.27	4282.87	5	3.97	80	3.12
MALLINCKRODT CHEM	26-4280-17	-04	2899	15	744.26	4282.88	5	3.98	121	47.10
MALLINCKRODT CHEM	26-4280-17	-01	2899	15	744.25	4282.90	4	3.99	175	2.50
UNION ELECTRIC CO VENIC	14-4680-03	-01	4911	15	745.52	4283.01	15	4.20	237	1.29
UNION ELECTRIC CO VENIC	14-4680-03	-02	4911	15	745.52	4283.03	15	4.21	237	.89
UNION ELECTRIC CO VENIC	14-4680-03	-03	4911	15	745.52	4283.05	15	4.22	237	.74
UNION ELECTRIC CO VENIC	14-4680-03	-04	4911	15	745.52	4283.07	15	4.24	237	.30
UNION ELECTRIC CO VENIC	14-4680-03	-05	4911	15	745.52	4283.09	15	4.25	237	.06
UNION ELECTRIC CO VENIC	14-4680-03	-06	4911	15	745.52	4283.11	15	4.26	237	.04
UNION ELECTRIC CO VENIC	14-4680-03	-07	4911	15	745.52	4283.13	15	4.27	237	757.04
UNION ELECTRIC CO VENIC	14-4680-03	-08	4911	15	745.52	4283.15	15	4.28	237	997.73
COLUMBIA QUARRY PLT #1	14-6900-12	-02	1422	15	745.50	4269.60	165	4.43	20	49.50
COLUMBIA QUARRY PLT #1	14-6900-12	-03	1422	15	745.50	4269.60	165	4.43	20	95.00
STOLLE QUARRY	14-6900-10	-01	3281	15	747.00	4269.70	154	4.70	15	.72
STOLLE QUARRY	14-6900-10	-02	3281	15	747.00	4269.70	154	4.70	15	2.17
STOLLE QUARRY	14-6900-10	-03	3281	15	747.00	4269.70	154	4.70	15	435.00
STOLLE QUARRY	14-6900-10	-04	3281	15	747.00	4269.70	154	4.70	15	5.80
STOLLE QUARRY	14-6900-10	-05	3281	15	747.00	4269.70	154	4.70	15	500.00
E ST LOUIS STONE	14-6900-11	-01	3281	15	746.80	4269.60	155	4.70	15	125.00
E ST LOUIS STONE	14-6900-11	-02	3281	15	746.80	4269.60	155	4.70	15	252.00
E ST LOUIS STONE	14-6900-11	-03	3281	15	746.80	4269.60	155	4.70	15	504.00
E ST LOUIS STONE	14-6900-11	-04	3281	15	746.80	4269.60	155	4.70	15	252.50
E ST LOUIS STONE	14-6900-11	-05	3281	15	746.80	4269.60	155	4.70	15	1920.00
E ST LOUIS STONE	14-6900-11	-06	3281	15	746.80	4269.60	155	4.70	15	2000.00
MUNICIPAL INCINERATOR N	26-4280-24	-01	4953	15	743.88	4284.15	1	4.75	250	79.73
MUNICIPAL INCINERATOR N	26-4280-24	-02	4953	15	743.91	4284.15	1	4.76	250	79.73
PROCTER AND GAMBLE	26-4280-57	-02	2841	15	743.70	4284.35	180	4.88	100	1.03

AREA SOURCE SUMMARY

Site: RAMS 105, Seventh and Shenandoah

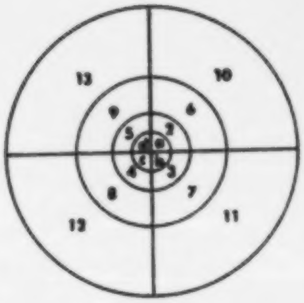
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		0.5	3.0	1.9	0.3	1.2	5.3	3.8	14.1	9.4	39.5
Res/Com/Ind fuel		0.5	0.6	0.09	0.5	1.1	7.7	0.4	8.2	19.2	38.3
Incinerators											
Rail/Air/Vessel		0.3	1.3	1.6	0.7		4.4	8.0	3.8		20.1
Auto exhaust	114.0x10^{6}VMT	3.8	1.6	0.73	2.1	7.8	17.2	0.2	20.1	21.78	75.3
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards	70.1 ac		0.4	1.5			3.9	0.9	0.4		7.1
Clean streets	114.0x10^{6}VMT	19.7	8.2	3.9	10.8	40.3	88.9	1.2	103.9	112.6	389.5
Comm streets											
Unpaved roads											
Cleared areas	2.4 ac	0.1			0.1						0.2
Construction	14.6 ac						61.3				61.3
Agriculture											
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	5.1	13.7	143.6	162.4
IND PROCESSES				
FUGITIVE DUST	19.8	65.1	373.1	458.0
Total	24.9	78.8	516.7	620.4

DESCRIPTION OF SITE

SAROAD code - RAMS 106

Location - Missouri Botanical Gardens



Monitor height - 13 ft, on roof of trailer

Land use, by sector -

1a dense residential
1b dense residential
1c dense residential
1d dense residential

2 dense residential
3 dense residential
4 dense residential
5 light industry

6 light industry
7 dense residential
8 dense residential
9 light industry

10 dense residential
11 dense residential
12 dense residential
13 central commercial

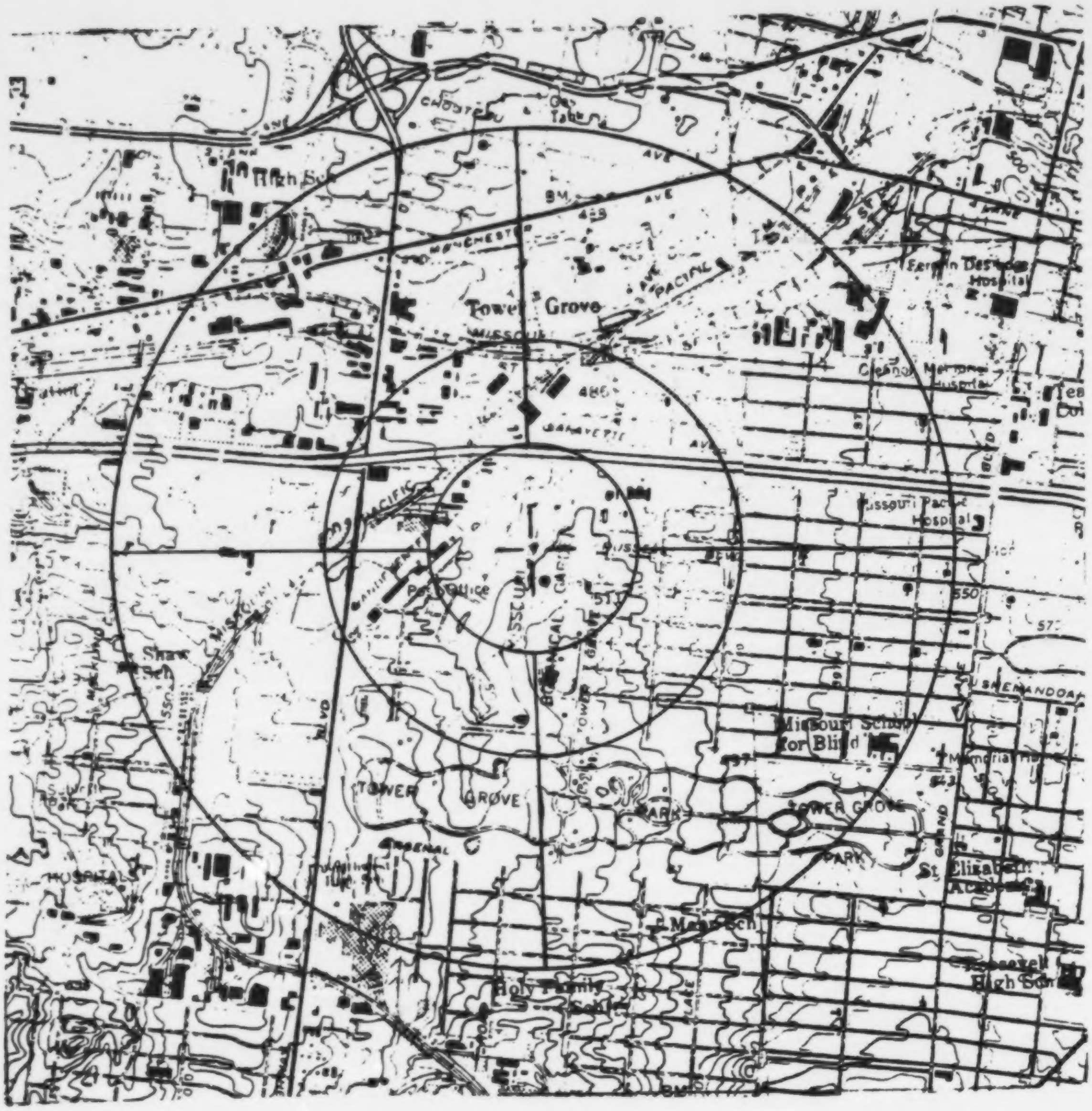
Topography - no special terrain

Localized sources, within 200 ft of monitor -

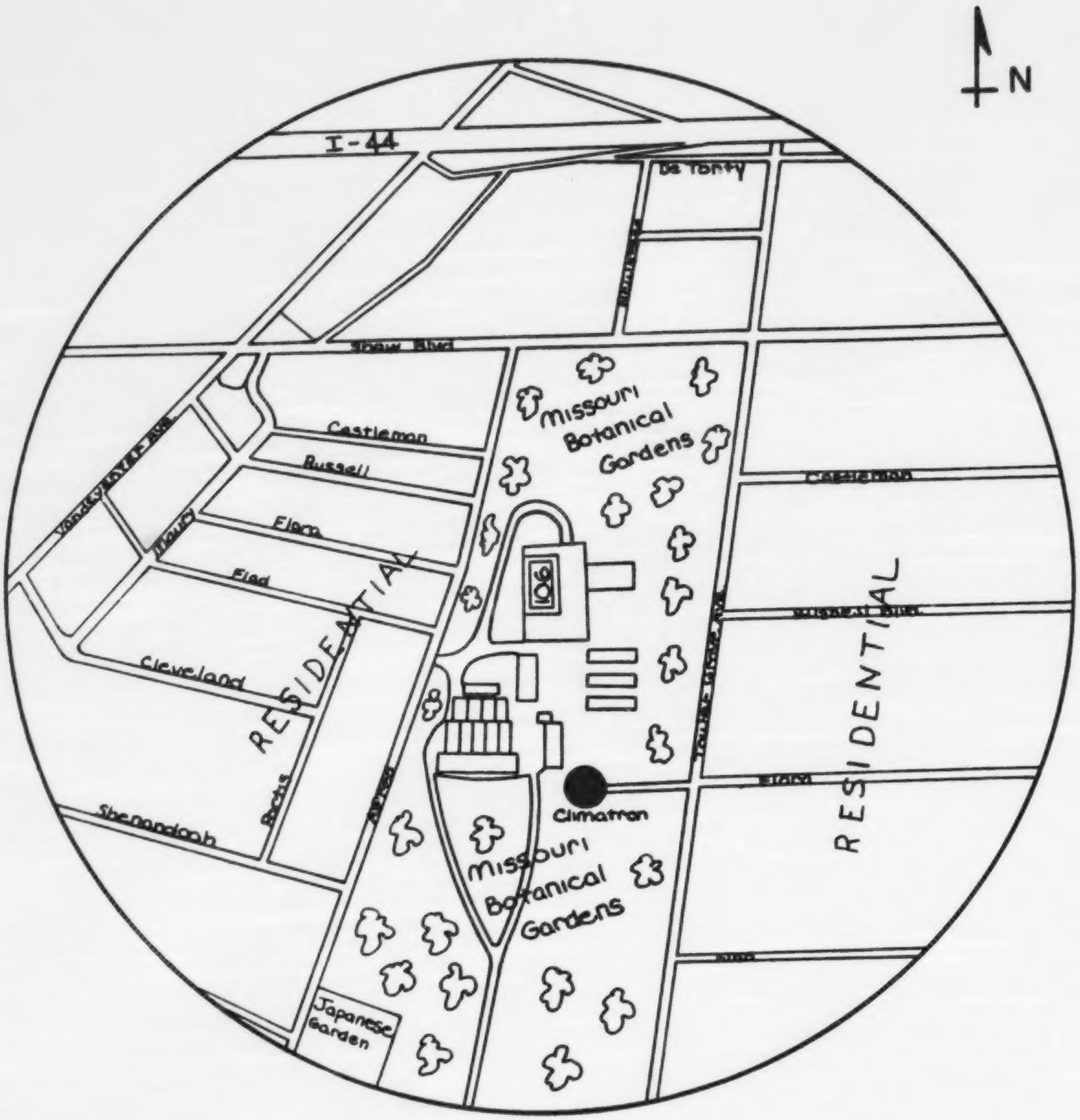
Source	Distance	Description
Alfred Road	140 ft	500 ADT

Air quality data -

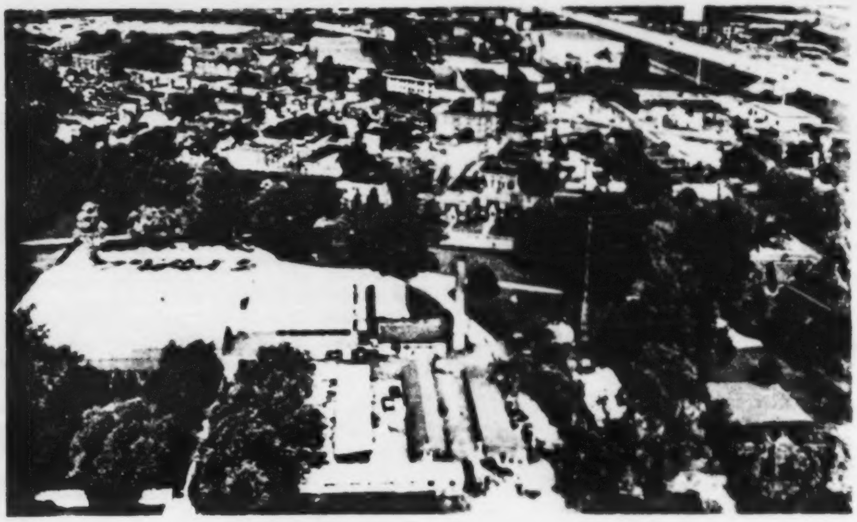
Year	Annual geometric mean, ug/m^3	No. of samples
1976	73	This information was not available
1975	70	


CHOUTEAU
Gas Tanks
AVE
High Sch
BM
453
AVE
MANCHESTER
PACIFIC
Deaconess Hospital
Tower Grove
MISSOURI
486
LAFAYETTE
Missouri Pacific Hospital
PACIFIC
Post Office
BOTANICAL
TOWER GROVE
551
550
SHENANDOAH
Shaw Sch
Missouri School for Blind
Memorial Home
TOWER
GROVE
PARK
TOWER GROVE
PARK
ARSENAL
St Elizabeth Academy
Mann Sch
Holy Family Sch
Roosevelt High Sch
HOSPITAL
BLVD
GRAND

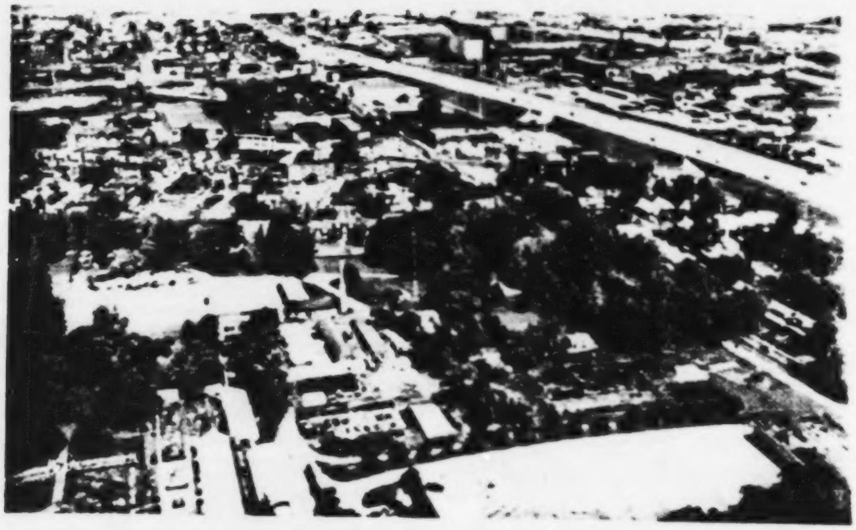
One mile radius around RAMS 106, Missouri Botanical Gardens site.


N
I-44
De Tonty
Shaw Blvd
Castleman
Russell
Flora
Flad
Cleveland
Shenandoah
RESIDENTIAL
RESIDENTIAL
Missouri Botanical Gardens
106
Climatron
Missouri Botanical Gardens
Japanese Garden

One-quarter mile radius around RAMS 106, Missouri Botanical Gardens site.



Viewed to the east.



Viewed to the east-northeast.
Sampler at RAMS 106, Missouri Botanical Gardens.

POINT SOURCE SUMMARY

```
          STATION( 33): RAM: 106
               NAME:                                    ELEVATION:    0 FT.
               ADDRESS:
               UTM ZONE: 15     UTMV:  4277.6     UTMH: 738.7

                                 STACKS WITHIN 5 MILE RADIUS

                                                     UTM                                      DIST  STK HT     PARTICULATE
          PLANT               PLANT-STACK CODE  SIC  ZONE    UTMV     UTMH     ANGLE  (MI.)  (FT)     EMIS(TONS)

   BANNER IRON WORKS         26-4280-59  -01   3321   15    738.10  4277.61    270    .37    85          12.75
   WASH. UNIV. EUCLID P&R    26-4280-40  -01   4911   15    738.32  4279.65    349   1.30   178         396.13
   VA HOSPITAL   COCHRAN     26-4280-56  -01   9100   15    740.85  4280.56     35   2.27    43            .62
   ANHEUSER BUSCH INC        26-4280-03  -02   2082   15    742.77  4275.48    117   2.85   225           7.53
   ANHEUSER BUSCH INC        26-4280-03  -01   2082   15    742.80  4275.52    116   2.86   225           6.07
   ANHEUSER BUSCH INC        26-4280-03  -03   2082   15    742.82  4275.56    116   2.86   225          36.33
   ANHEUSER BUSCH INC        26-4280-03  -05   2082   15    742.84  4275.53    116   2.88   100           2.46
   ANHEUSER BUSCH INC        26-4280-03  -04   2082   15    742.86  4275.51    116   2.89    75           5.57
   MUNICIPAL INCINERATOR S   26-4280-25  -01   4953   15    741.83  4273.51    142   3.20   250          79.73
   MUNICIPAL INCINERATOR S   26-4280-25  -02   4953   15    741.84  4273.50    142   3.21   250          79.73
   MONSANTO CO               26-4280-23  -02   2899   15    743.98  4276.56    101   3.34   150           1.89
   MONSANTO CO               26-4280-23  -03   2899   15    743.99  4276.55    101   3.35   150           1.86
   MONSANTO CO               26-4280-23  -04   2899   15    744.00  4276.54    101   3.36   150            .43
   MONSANTO CO               26-4280-23  -05   2899   15    744.01  4276.53    101   3.37   150            .52
   MONSANTO CO               26-4280-23  -06   2899   15    744.10  4276.35    103   3.44   150         226.09
   WASH. UNIV. CAMPUS P&R.   26-4300-16  -01   4911   15    734.43  4281.15    309   3.45   178         244.27
   UNION ELECTRIC CAHOKIA    14-6900-14  -05   4911   15    745.06  4276.25    101   4.04   328           5.79
   UNION ELECTRIC CAHOKIA    14-6900-14  -01   4911   15    745.10  4276.34    101   4.05   328           1.01
   UNION ELECTRIC CAHOKIA    14-6900-14  -03   4911   15    745.08  4276.29    101   4.05   328            .48
   UNION ELECTRIC CAHOKIA    14-6900-14  -02   4911   15    745.13  4276.33    101   4.07   328           1.17
   UNION ELECTRIC CAHOKIA    14-6900-14  -04   4911   15    745.12  4276.28    101   4.07   326            .35
   UNION ELECTRIC CAHOKIA    14-6900-14  -06   4911   15    745.10  4276.24    101   4.07   328           5.97
  UNION ELECTRIC             26-4280-38  -01   4911   15    745.20  4280.01     69   4.31   180           2.56
  GENERAL MOTORS ASSEMBLY    26-4280-04  -01   3711   15    738.28  4284.80    356   4.48   225          13.19
   CONTINENTAL GRAIN CO      14-6900-20  -01   2041   15    745.95  4278.95     79   4.58    15          24.79
   CONTINENTAL GRAIN CO      14-6900-20  -02   2041   15    745.95  4278.95     79   4.58    15          52.07
   MALLINCKRODT CHEM         26-4280-17  -04   2899   15    744.26  4282.88     46   4.76   121          47.10
   MALLINCKRODT CHEM         26-4280-17  -05   2899   15    744.27  4282.87     46   4.76    80           3.12
   MALLINCKRODT CHEM         26-4280-17  -01   2899   15    744.25  4282.90     46   4.77   175           2.53
   CERRO COPPER PRODUCTS     14-6900-25  -01   3351   15    746.14  4275.07    108   4.88    60            .09
   CERRO COPPER PRODUCTS     14-6900-25  -02   3351   15    746.14  4275.07    108   4.88    60            .09
   CERRO COPPER PRODUCTS     14-6900-25  -03   3351   15    746.14  4275.07    108   4.88    60            .09
  GREEN FOUNDRY DIV BANNER   26-4280-60  -01   3321   15    738.90  4285.53      1   4.93   105          24.22
  PVO INTERNATIONAL          26-4280-58  -01   2079   15    744.81  4282.71     50   4.95    70         100.47
  PVO INTERNATIONAL          26-4280-58  -02   2079   15    744.81  4282.70     50   4.95    70         218.37
  PVO INTERNATIONAL          26-4280-58  -03   2079   15    744.82  4282.69     50   4.95    70          46.87
```

AREA SOURCE SUMMARY

Site: RAMS 106, Missouri Botanical Gardens

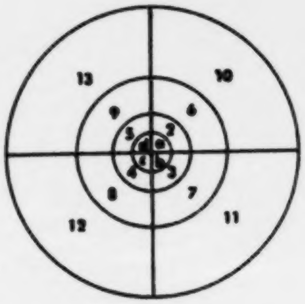
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		0.2	1.8	0.3	0.09	2.7	3.7	0.6	4.3	13.0	26.7
Res/Com/Ind fuel		2.7	2.5	3.6	0.9	4.3	12.2	17.3	10.0	3.7	54.2
Incinerators											
Rail/Air/Vessel		0.009	0.26	0.001	0.009	0.34	1.3		0.03	1.4	3.3
Auto exhaust	76.1×10^6VMT	5.9	4.3	0.7	1.6	4.6	9.2	1.8	8.1	14.0	50.2
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards											
Clean streets	76.1×10^6VMT	30.4	22.1	3.9	8.3	23.9	47.5	9.6	42.1	72.2	260.0
Comm streets											
Unpaved roads											
Cleared areas											
Construction	7.4 ac	1.9			29.0						291.9
Agriculture											
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	8.8	25.0	100.6	134.4
IND PROCESSES				
FUGITIVE DUST	32.3	87.2	171.4	290.9
Total	41.1	112.2	272.0	425.3

DESCRIPTION OF SITE

SAROAD code - RAMS 108

Location - Pontoon Road



Monitor height - 13 ft, on roof of
trailer

Land use, by sector -

1a agriculture
1b agriculture
1c agriculture
1d agriculture

2 agriculture
3 agriculture
4 agriculture
5 agriculture

6 agriculture
7 agriculture
8 agriculture
9 undeveloped

10 agriculture
11 dense residential
12 dense residential
13 undeveloped

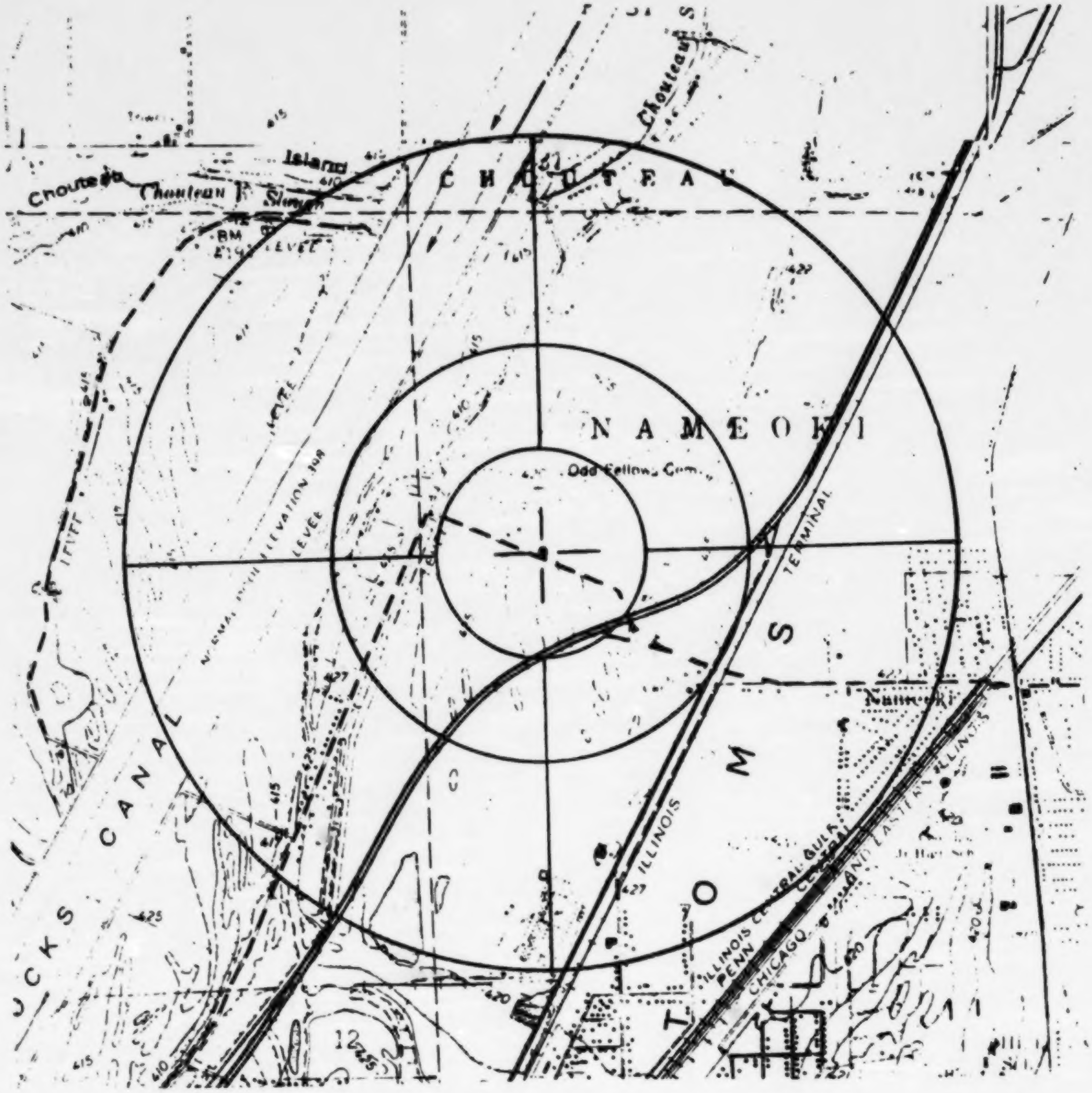
Topography - no special terrain

Localized sources, within 200 ft of monitor -

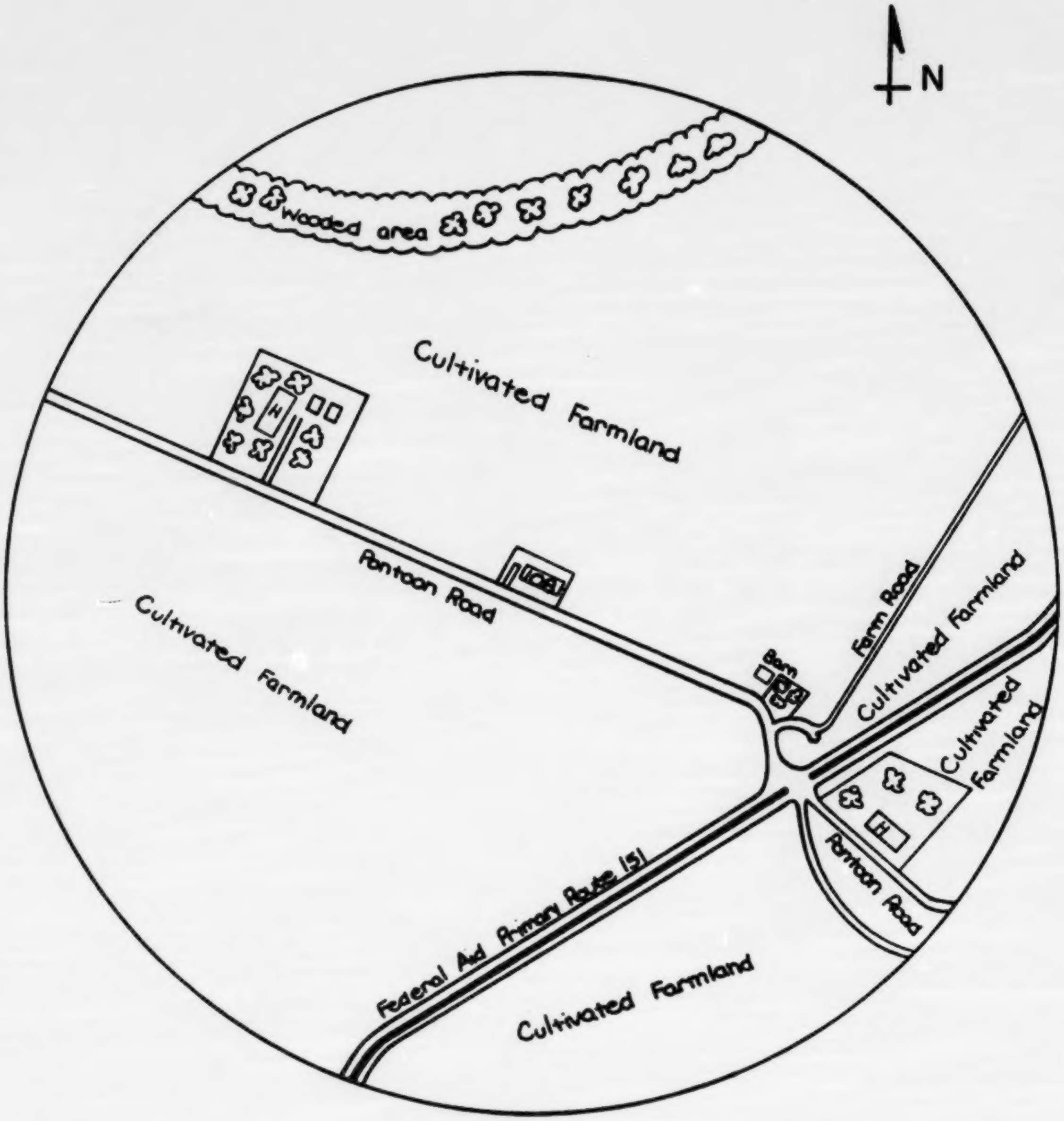
Source	Distance	Description
Pontoon Road	25 ft	300 ADT

Air quality data -

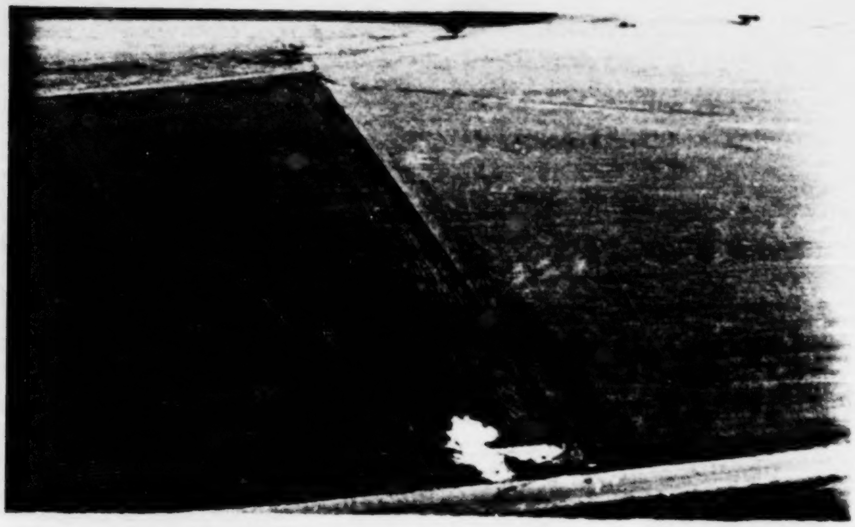
Year	Annual geometric mean, ug/m^3	No. of samples
1976	77	This information
1975	74	was not available


Chouteau
Chouteau Island Slough
CHOUTEAU
BM
LEVEE
NAMEOKI
Odd Fellows Cem.
LEVEE
CANAL
ILLINOIS TERMINAL
ILLINOIS CENTRAL GULF
PENN CENTRAL
CHICAGO & EASTERN ILLINOIS
Nameoki
12

One mile radius around RAMS 108, Pontoon Road site.


N
Wooded area
Cultivated Farmland
H
108
Pontoon Road
Cultivated Farmland
Farm Road
Barn
Cultivated Farmland
Cultivated Farmland
H
Pontoon Road
Federal Aid Primary Route 151
Cultivated Farmland

One-quarter mile radius around RAMS 108, Pontoon Road site.



Viewed to the northeast.

Viewed to the southeast.
Sampler at RAMS 108, Pontoon Road.

POINT SOURCE SUMMARY

STATION(41: RAMS 108
NAME:
ADDRESS:
UTM ZONE: 15 UTMV: 4291.1

ELEVATION: 0 FT.
UTMH: 748.4

STACKS WITHIN 5 MILE RADIUS

PLANT	PLANT-STACK-CODE		SIC	UTM ZONE	UTMV	UTMH	ANGLE	DIST (MI.)	STK HT (FT)	PARTICULATE EMIS(TONS)
A O SMITH	14-4680-37	-01	3714	15	748.35	4289.80	182	.81	30	.54
NESTLE CO. INC.	14-4680-12	-01	2099	15	747.68	4287.75	192	2.13	48	1.69
NESTLE CO. INC.	14-4680-12	-02	2099	15	747.69	4287.74	191	2.13	48	1.53
NESTLE CO. INC.	14-4680-12	-03	2099	15	747.70	4287.73	191	2.14	48	6.34
NESTLE CO. INC.	14-4680-12	-04	2099	15	747.71	4287.72	191	2.14	48	1.94
AMERICAN STEEL FOUNDRY	14-4680-08	-01	3493	15	747.50	4287.30	200	2.52	41	39.49
AMERICAN STEEL FOUNDRY	14-4680-08	-02	3493	15	747.50	4287.30	200	2.52	41	39.49
AMERICAN STEEL FOUNDRY	14-4680-08	-03	3493	15	746.95	4287.28	200	2.54	200	11.21
FINLEY PLATING CO	14-4680-27	-01	3471	15	747.76	4286.87	188	2.66	75	.01
N L INDUSTRIES	14-4680-11	-01	3341	15	747.20	4286.80	195	2.77	140	4.61
N L INDUSTRIES	14-4680-11	-02	3341	15	747.20	4286.80	195	2.77	45	4.61
GRANITE CITY STEEL	14-4680-09	-10	3312	15	748.40	4286.50	186	2.86	160	205.00
GRANITE CITY STEEL	14-4680-09	-13	3312	15	748.40	4286.50	186	2.86	175	37.00
GRANITE CITY STEEL	14-4680-09	-14	3312	15	748.40	4286.50	186	2.86	100	51.00
GRANITE CITY STEEL	14-4680-09	-19	3312	15	748.40	4286.50	186	2.86	225	12.00
GRANITE CITY STEEL	14-4680-09	-20	3312	15	748.40	4286.50	186	2.86	200	5.00
GRANITE CITY ARMY DEPOT	14-4680-17	-02	9190	15	746.12	4286.79	207	3.03	56	2.24
GRANITE CITY ARMY DEPOT	14-4680-17	-03	9190	15	746.10	4286.79	208	3.04	56	.80
GRANITE CITY STEEL	14-4680-09	-01	3312	15	749.50	4286.30	167	3.06	250	63.00
GRANITE CITY STEEL	14-4680-09	-02	3312	15	749.50	4286.30	167	3.06	250	114.00
GRANITE CITY STEEL	14-4680-09	-03	3312	15	749.50	4286.30	167	3.06	261	143.00
GRANITE CITY STEEL	14-4680-09	-07	3312	15	749.50	4286.30	167	3.06	100	28.00
GRANITE CITY STEEL	14-4680-09	-08	3312	15	749.50	4286.30	167	3.06	107	595.00
GRANITE CITY STEEL	14-4680-09	-09	3312	15	749.50	4286.30	167	3.06	150	112.00
GRANITE CITY STEEL	14-4680-09	-05	3312	15	749.80	4286.30	163	3.11	150	40.00
GRANITE CITY STEEL	14-4680-09	-06	3312	15	749.80	4286.30	163	3.11	150	44.00
GRANITE CITY STEEL	14-4680-09	-21	3312	15	749.80	4286.30	163	3.11	108	18.00
GRANITE CITY STEEL	14-4680-09	-22	3312	15	749.80	4286.30	163	3.11	151	14.00
GRANITE CITY STEEL	14-4680-09	-23	3312	15	749.80	4286.30	163	3.11	151	14.00
REILLY TAR & CHEM	14-4680-36	-01	2865	15	748.90	4286.00	174	3.18	27	.47
REILLY TAR & CHEM	14-4680-36	-02	2865	15	748.91	4286.00	174	3.18	28	.15
CONSOLIDATED ALUMINUM C	14-4680-27	-02	3334	15	746.45	4285.45	199	3.71	75	.22
MISSOURI PORTLAND CEMEN	26-4300-08	-01	3241	15	741.85	4290.83	267	4.07	235	6384.00
MOSS AMERICAN INC	14-4680-31	-01	2491	15	747.50	4283.84	187	4.55	35	5.76

AREA SOURCE SUMMARY

Site: RAMS 108, Pontoon Road

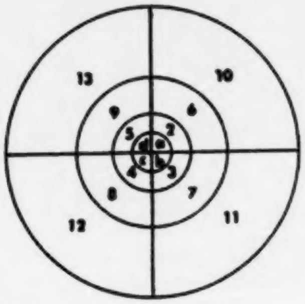
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		0.03	0.02	0.03	0.02	0.02	0.08	0.4	0.3	0.5	1.40
Res/Com/Ind fuel		0.09		0.17	0.3		0.2	1.3	0.9	2.4	5.36
Incinerators											
Rail/Air/Vessel		0.001		0.04	0.07	0.15	0.09	0.6	0.4	1.2	2.55
Auto exhaust	7.7x10^{6}VMT	0.3	0.2	1.0	0.2		1.3	1.6	0.4		5.0
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards											
Clean streets	7.7x10^{6}VMT	1.8	0.9	5.1	1.2	0.2	6.7	8.2	2.3		26.4
Comm streets											
Unpaved roads											
Cleared areas											
Construction											
Agriculture	104 ac	2.8	2.2	2.2	2.3	1.9	9.2	5.3	3.3	2.1	31.3
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	0.4	2.2	11.7	14.3
IND PROCESSES				
FUGITIVE DUST	4.6	16.0	37.1	57.7
Total	5.0	18.2	48.8	72.0

DESCRIPTION OF SITE

SAROAD code - RAMS 112

Location - Washington University



Monitor height - 13 ft, on roof of trailer

Land use, by sector -

1a light residential
1b dense residential
1c undeveloped
1d light residential

2 dense residential
3 dense residential
4 light residential
5 dense residential

6 dense residential
7 dense residential
8 dense residential
9 dense residential

10 dense residential
11 dense residential
12 dense residential
13 dense residential

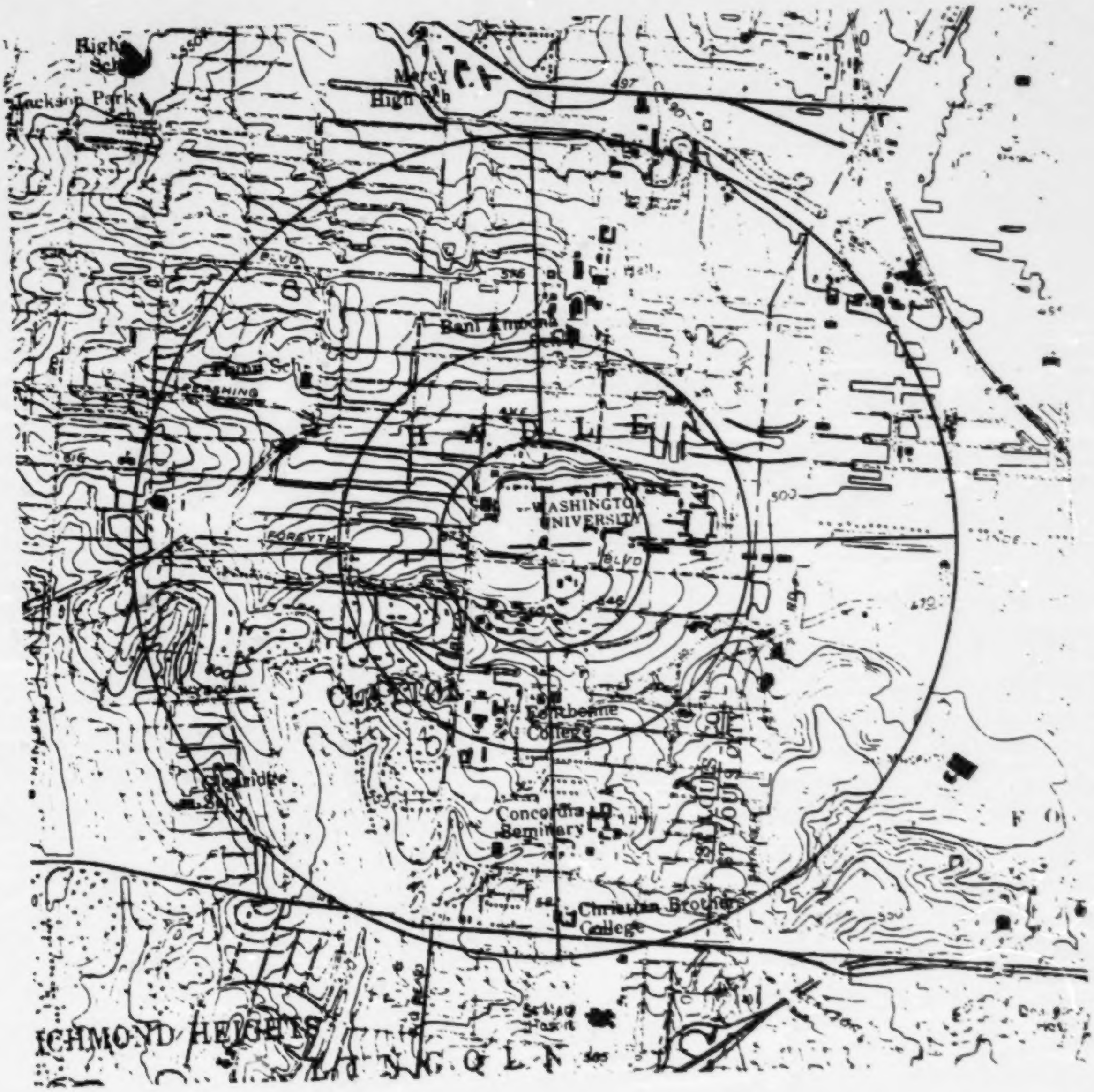
Topography - no special terrain

Localized sources, within 200 ft of monitor -

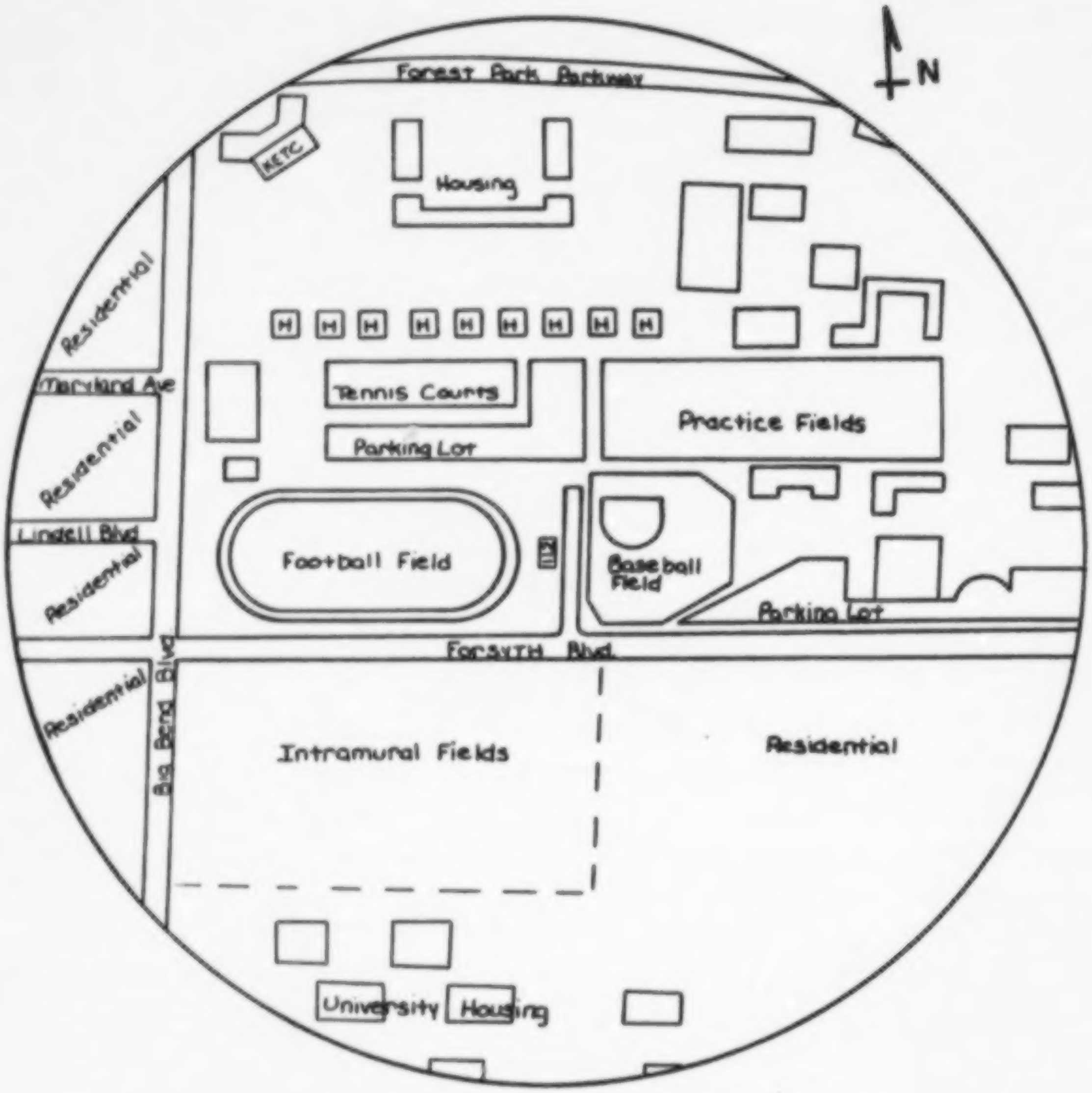
Source	Distance	Description
Side Street	20 ft	3000 ADT
Forsyth Street	160 ft	11,300 ADT
Baseball field	140 ft	
Cinder track	140 ft	

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	70	This information
1975	71	was not available


Jackson Park
WASHINGTON UNIVERSITY
FORSYTH
BLVD
Fontbonne College
Concordia Seminary
Christian Brothers College
ICHMOND HEIGHTS

One mile radius around RAMS 112, Washington University site.


Forest Park Parkway
N
KETC
Housing
Residential
Maryland Ave
Residential
Lindell Blvd
Residential
H
H
H
H
H
H
H
H
H
Tennis Courts
Parking Lot
Practice Fields
Football Field
Baseball Field
Parking Lot
Forsyth Blvd
Residential
Big Bend Blvd
Intramural Fields
Residential
University Housing

One-quarter mile radius around RAMS 112, Washington University site.

Viewed to the west.

Viewed to the southeast.
Sampler at RAMS 112, Washington University.

POINT SOURCE SUMMARY

```
          STATION( 5): RAMS 112
               NAME:                            ELEVATION:    6 FT.
               ADDRESS:
               UTM ZONE: 15     UTMV:  4280.9     UTMH: 733.9

                              STACKS WITHIN 5 MILE RADIUS

                                                         UTM                                      DIST  STK HT    PARTICULATE
             PLANT              PLANT-STACK-CODE    SIC  ZONE    UTMV      UTMH     ANGLE   (MI.)   (FT)       EMIS(TONS)

     WASH. UNIV. CAMPUS P&R.   26-4300-16   -01    4911   15    734.43   4281.15      64     .36    178          244.27
     WASH. UNIV. EUCLID P&R    26-4280-40   -01    4911   15    738.32   4279.65     155    2.85    178          396.13
     BANNER IRON WORKS         26-4280-59   -01    3321   15    738.10   4277.61     128    3.32     83           12.75
    GENERAL MOTORS ASSEMBLY    26-4280-06   -01    3711   15    738.28   4284.80      48    3.64    225           13.19
     CONTINENTAL CAN CO        26-4300-03   -01    2655   15    731.79   4287.14     341    4.09     50            2.20
    GREEN FOUNDRY DIV BANNER   26-4280-60   -01    3321   15    736.96   4285.53      47    4.23    105           24.22
     VA HOSPITAL   COCHRAN     26-4280-56   -01    9100   15    740.85   4280.56      92    4.32     43             .62
```

AREA SOURCE SUMMARY

Site: RAMS 112, Washington University

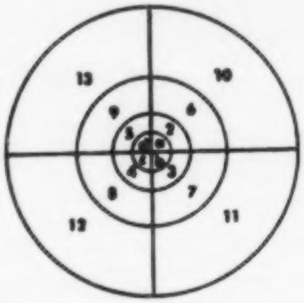
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		0.03	0.02	0.02	0.02	0.02	0.14	0.22	0.14	0.08	0.69
Res/Com/Ind fuel		0.8	0.6	0.3	0.5	1.0	10.2	15.8	1.5	3.1	33.8
Incinerators							0.08				0.08
Rail/Air/Vessel											
Auto exhaust	56.0x10^{6}VMT	3.3	1.5	1.0	1.6	2.2	10.1	6.8	4.2	6.3	37.0
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards											
Clean streets	56.0x10^{6}VMT	17.0	7.7	5.2	8.2	11.3	52.3	35.1	22.0	32.5	191.3
Comm streets											
Unpaved roads											
Cleared areas	1.3 ac	0.1									0.1
Construction											
Agriculture											
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	4.1	8.8	58.7	71.6
IND PROCESSES				
FUGITIVE DUST	17.1	32.4	141.9	191.4
Total	21.2	41.2	200.6	263.0

DESCRIPTION OF SITE

SAROAD code - RAMS 115

Location - Poag Road and County Highway 19



Monitor height - 13 ft, on roof of trailer

Land use, by sector -

1a	agriculture	6	agriculture
1b	agriculture	7	agriculture
1c	agriculture	8	agriculture
1d	agriculture	9	agriculture
2	agriculture	10	agriculture
3	agriculture	11	agriculture
4	agriculture	12	agriculture
5	agriculture	13	agriculture

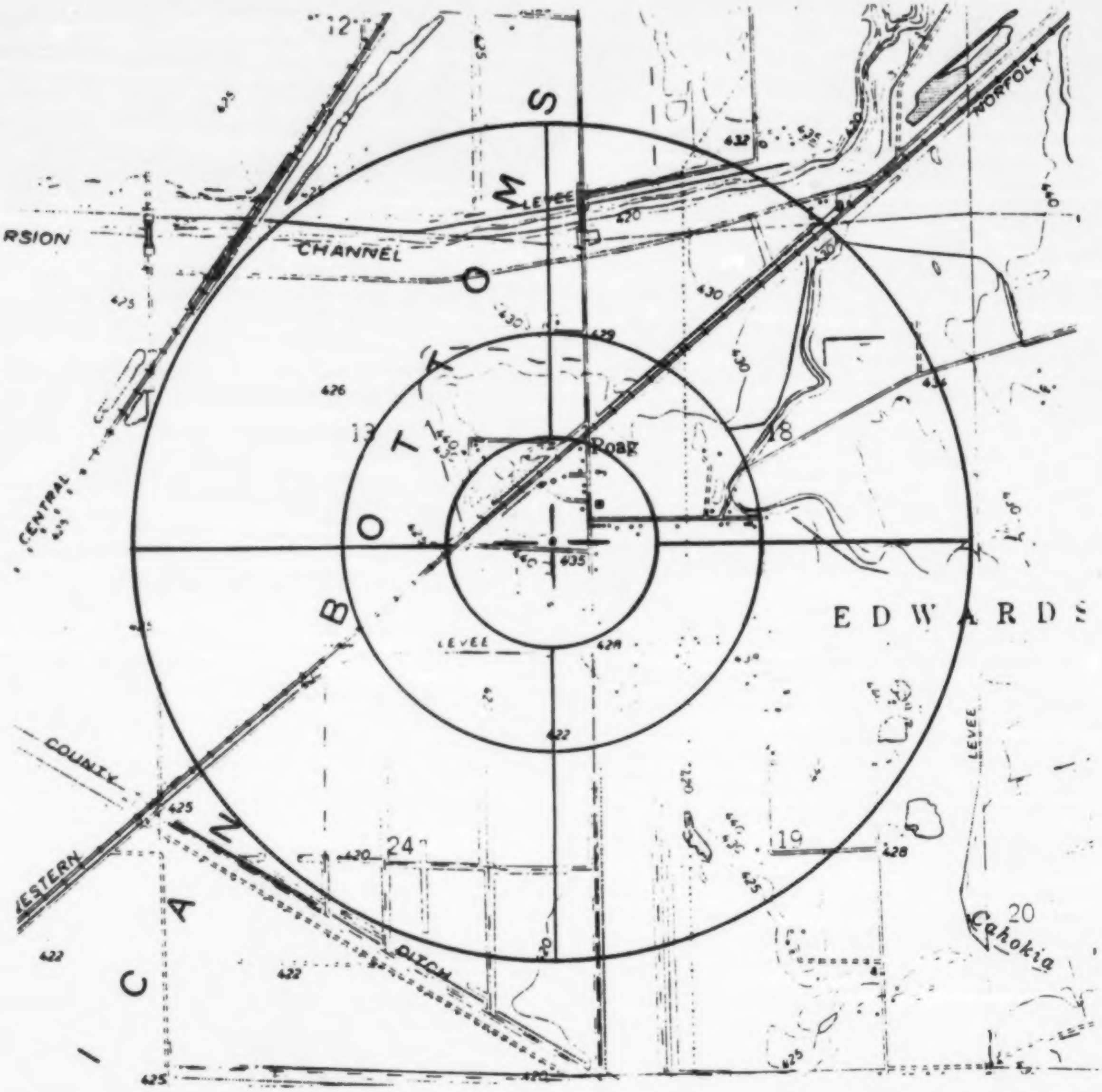
Topography - no special terrain

Localized sources, within 200 ft of monitor -

Source	Distance	Description
Poag Road	40 ft	525 ADT

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	55	This information
1975	53	was not available



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LEVEE
NORFOLK
CENTRAL
WESTERN
COUNTY
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Poag
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18
24
19
20
EDWARDS
Cahokia
LEVEE
425
426
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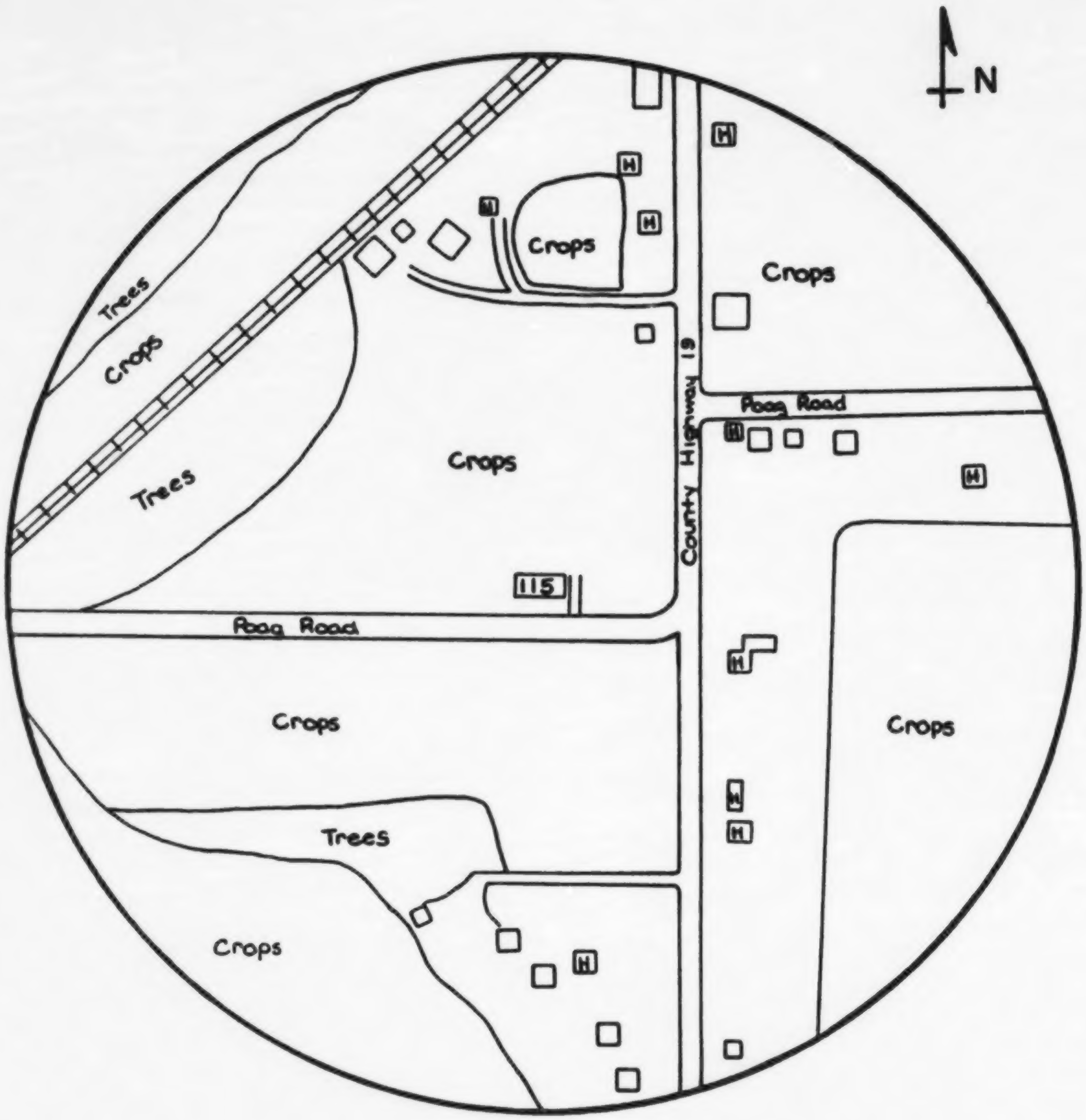
435
428
422

One mile radius around RAMS 115, Poag Road and County Highway 19 site.


N
Trees
Crops
Trees
Crops
Crops
Crops
115
Poag Road
County Highway 19
Poag Road
H
Crops
Trees
Crops
Crops

One-quarter mile radius around RAMS 115, Poag Road and County Highway 19 site.

Viewed to the east.

Viewed to the west.
Sampler at RAMS 115, Poag Road and County Highway 19.

POINT SOURCE SUMMARY

```
        STATION( 61: PAMS 115
             NAME:                                    ELEVATION:    0 FT.
             ADDRESS:
             UTM ZONE: 15     UTMV:  4297.8      UTMH: 757.1

                        STACKS WITHIN 5 MILE RADIUS

                                                    UTM                                  DIST  STK HT    PARTICULATE
        PLANT                   PLANT-STACK CODE  SIC  ZONE   UTMV     UTMH     ANGLE  (MI.)  (FT)     EMIS(TONS)

    CLARK OIL CO              14-4680-05  -14    2992   15    753.22   4302.17    318    3.63   180          5.17
    CLARK OIL CO              14-4680-05  -15    2992   15    753.18   4302.18    318    3.65   188           .80
    CLARK OIL CO              14-4680-05  -53    2992   15    753.08   4302.15    317    3.68   180          2.93
    CLARK OIL CO              14-4680-05  -51    2992   15    753.08   4302.17    317    3.69   180         12.25
    CLARK OIL CO              14-4680-05  -52    2992   15    753.08   4302.16    317    3.69   180          4.58
    CLARK OIL CO              14-4680-05  -16    2992   15    753.00   4302.17    316    3.72    92          1.28
    CLARK OIL CO              14-4680-05  -20    2992   15    752.98   4302.16    316    3.73   194       1244.30
    CLARK OIL CO              14-4680-05  -11    2992   15    752.89   4302.22    316    3.79   100          1.60
    CLARK OIL CO              14-4680-05  -12    2992   15    752.96   4302.22    316    3.79   100           .75
    CLARK OIL CO              14-4680-05  -17    2992   15    752.81   4302.13    315    3.79    55          3.89
    CLARK OIL CO              14-4680-05  -08    2992   15    752.83   4302.18    315    3.80    85           .84
    CLARK OIL CO              14-4680-05  -09    2992   15    752.87   4302.22    316    3.80   100          1.61
    CLARK OIL CO              14-4680-05  -10    2992   15    752.88   4302.22    316    3.80   100          2.00
    CLARK OIL CO              14-4680-05  -18    2992   15    752.79   4302.13    315    3.80    55          3.89
    CLARK OIL CO              14-4680-05  -19    2992   15    752.78   4302.13    315    3.80    79          7.32
    CLARK OIL CO              14-4680-05  -02    2992   15    752.77   4302.15    315    3.81    80          1.81
    CLARK OIL CO              14-4680-05  -06    2992   15    752.81   4302.18    315    3.81   125          1.92
    CLARK OIL CO              14-4680-05  -13    2992   15    752.86   4302.24    316    3.81   100          2.98
    CLARK OIL CO              14-4680-05  -01    2992   15    752.75   4302.15    315    3.82   110          3.27
    CLARK OIL CO              14-4680-05  -03    2992   15    752.72   4302.15    314    3.84    93          1.81
    CLARK OIL CO              14-4680-05  -04    2992   15    752.72   4302.18    315    3.85   103          1.86
    CLARK OIL CO              14-4680-05  -05    2992   15    752.76   4302.18    314    3.86    73          1.69
    ILLINOIS POWER  STALLIN   14-4680-02  -04    4911   15    756.82   4298.91    182    4.28    30          1.90
    ILLINOIS POWER  STALLIN   14-4680-02  -03    4911   15    756.79   4298.90    182    4.29    30          1.90
    ILLINOIS POWER  STALLIN   14-4680-02  -02    4911   15    756.75   4298.89    182    4.30    30          1.90
    ILLINOIS POWER  STALLIN   14-4680-02  -01    4911   15    756.72   4298.88    183    4.31    30          1.90
    AMOCO OIL REFINERY        14-4680-04  -07    2911   15    752.22   4303.85    321    4.83   160           .07
    AMOCO OIL REFINERY        14-4680-04  -25    2911   15    752.04   4303.87    320    4.91   169         44.97
    AMOCO OIL REFINERY        14-4680-04  -16    2911   15    752.19   4304.02    321    4.92   110          5.10
    AMOCO OIL REFINERY        14-4680-04  -12    2911   15    752.19   4304.01    321    4.92   110          5.10
    AMOCO OIL REFINERY        14-4680-04  -14    2911   15    752.18   4304.01    321    4.92   110          5.37
    AMOCO OIL REFINERY        14-4680-04  -09    2911   15    752.19   4304.03    321    4.93   110          5.10
    AMOCO OIL REFINERY        14-4680-04  -64    2911   15    751.96   4303.90    319    4.96   171        116.55
```

AREA SOURCE SUMMARY

Site: RAMS 115, Poag Road and County Highway 19

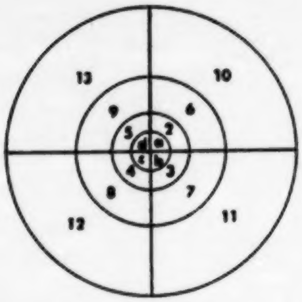
Source category	Activity rate	Emissions by sector, ton/yr 1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		4.5	3.3	3.3	3.3	3.3	13.1	13.1	13.1	13.1	70.1
Res/Com/Ind fuel		13.7	10.3	10.3	10.3	10.3	41.2	41.2	41.2	41.2	219.7
Incinerators											
Rail/Air/Vessel		4.6	3.4	3.4	3.4	3.4	14.0	14.0	14.0	14.0	74.2
Auto exhaust	1.0×10^6 VMT	0.1	0.1				0.2	0.1			0.5
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards		0.2	0.1		0.1		0.2		0.2		0.8
Clean streets	1.0×10^6 VMT	0.7	0.5	0.1	0.2		1.0	0.5	0.3		3.4
Comm streets											
Unpaved roads	5.1×10^4 VMT						7.3		11.8	51.7	70.8
Cleared areas											
Construction	23 ac		10.6			10.6	38.2			38.2	97.6
Agriculture	1500 ac	1.6	1.7	1.7	2.3	1.7	5.9	7.8	9.3	6.9	38.9
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr 1	2-5	6-9	Total
COMBUSTION	22.9	68.1	273.5	364.5
IND PROCESSES				
FUGITIVE DUST	2.6	29.6	179.3	211.5
Total	25.5	97.7	452.8	576.0

DESCRIPTION OF SITE

SAROAD code - RAMS 118

Location - Mule Road and Illinois State Highway 3



Monitor height - 13 ft on roof of trailer

Land use, by sector -

1a	agriculture	6	agriculture
1b	agriculture	7	undeveloped
1c	agriculture	8	agriculture
1d	agriculture	9	agriculture
2	agriculture	10	agriculture
3	agriculture	11	agriculture
4	agriculture	12	agriculture
5	agriculture	13	agriculture

Topography - no special terrain

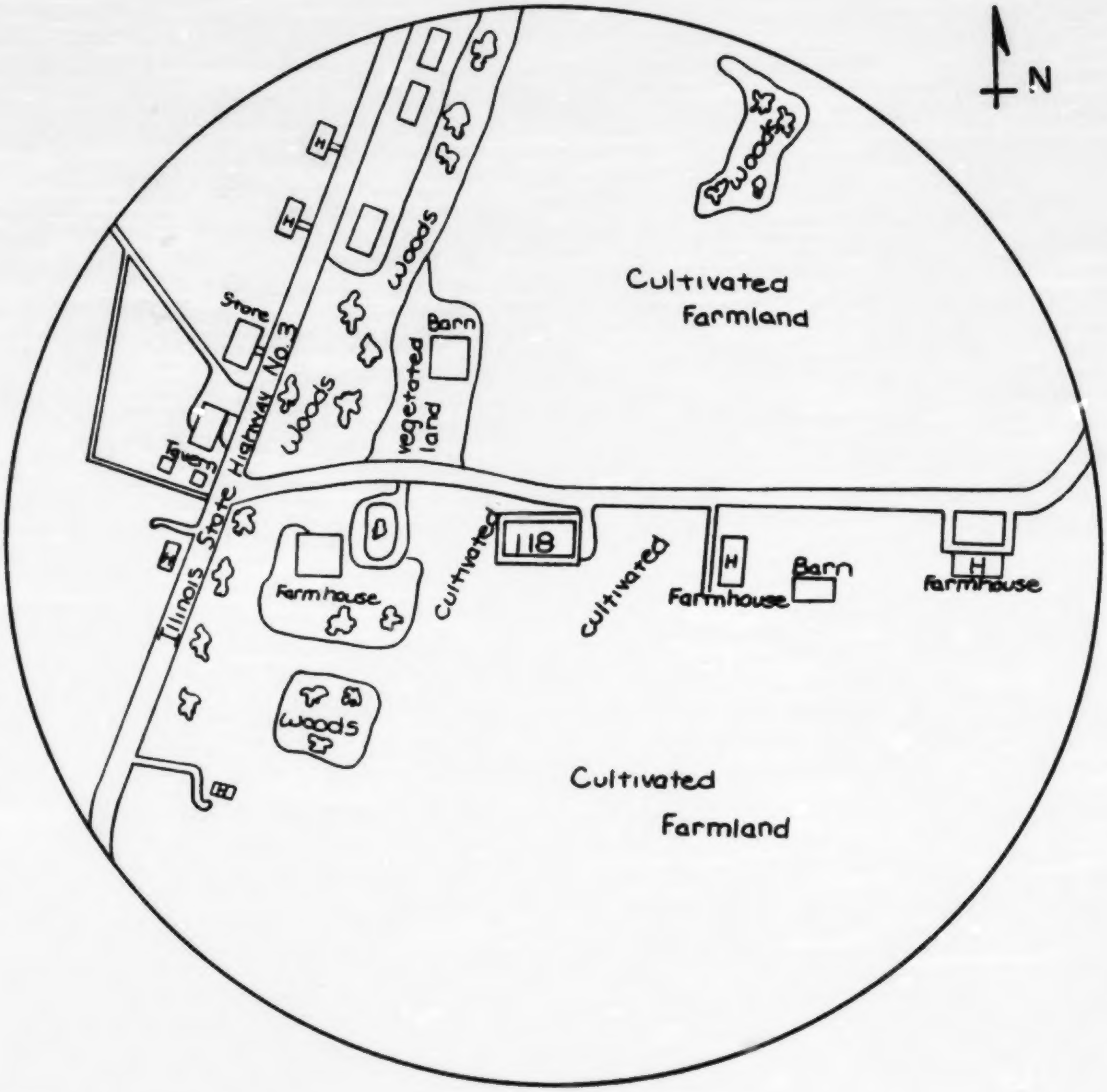
Localized sources, within 200 ft of monitor -

Source	Distance	Description
Mule Road	30 ft	125 ADT

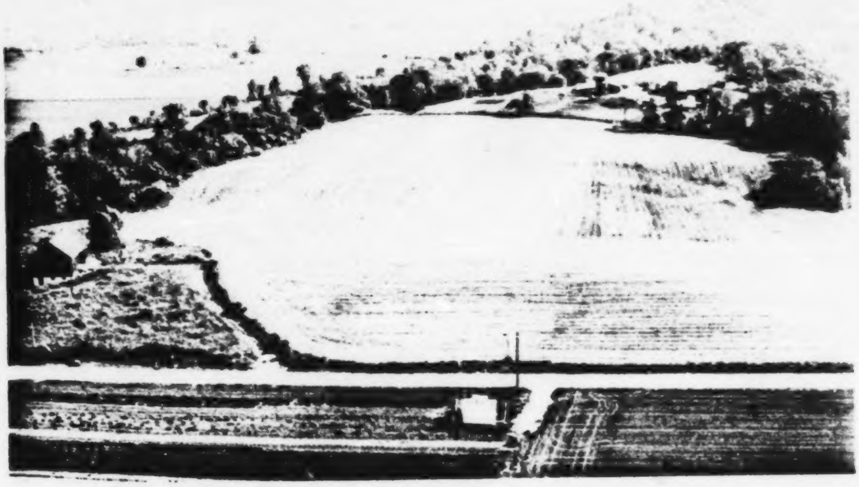
Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	62	This information was not available
1975	57	

One mile radius around RAMS 118, Mule Road and Illinois State Highway 3 site.


N
Woods
Cultivated
Farmland
Store
Illinois State Highway No. 3
Woods
Woods
Barn
vegetated land
Tavern
118
Farmhouse
Cultivated
Cultivated
H
Barn
Farmhouse
H
Farmhouse
Woods
Cultivated
Farmland

One-quarter mile radius around RAMS 118, Mule Road and Illinois State Highway 3 site.



Viewed to the north.

Viewed to the south.

Sampler at RAMS 118, Mule Road and Illinois State Highway 3.

POINT SOURCE SUMMARY

```
          STATION( 73): RAMS 118
               NAME:                                  ELEVATION:    0 FT.
               ADDRESS:
               UTM ZONE: 15    UTMV:  4263.3      UTMH:  743.1

                                STACKS WITHIN 5 MILE RADIUS

                                                        UTM                                     DIST  STK HT    PARTICULATE
              PLANT                 PLANT-STACK CODE    SIC  ZONE   UTMV     UTMH    ANGLE  (MI.)  (FT)       EMISSIONS)

      COLUMBIA QUARRY PLT 9       16-0900-04  -01     1422   15   742.30  4265.50    340    1.45     20          16.75
      COLUMBIA QUARRY PLT 9       16-0900-04  -02     1422   15   742.30  4265.50    340    1.45     20          17.62
      COLUMBIA QUARRY PLT 9       16-0900-04  -03     1422   15   742.30  4265.50    340    1.45     20         325.00
      COLUMBIA QUARRY PLT 9       16-0900-04  -04     1422   15   742.30  4265.50    340    1.45     20        2375.00
       COLUMBIA QUARRY PLT 81     16-0900-12  -01     1422   15   745.50  4260.60    138    2.24     20          47.50
       COLUMBIA QUARRY PLT 81     16-0900-12  -04     1422   15   745.50  4260.60    138    2.24     15        3750.00
       VA HOSPITAL JEFF BARRAC    20-4300-16  -01     9100   15   737.16  4264.12    277    3.73    200           1.04
       BUSSEN QUARRY              20-4300-33  -01     1422   15   736.80  4262.10    259    3.99     15          37.50
       BUSSEN QUARRY              20-4300-33  -02     1422   15   736.80  4262.10    259    3.99     15         112.50
       BUSSEN QUARRY              20-4300-33  -03     1422   15   736.80  4262.10    259    3.99     15         150.00
       BUSSEN QUARRY              20-4300-33  -04     1422   15   736.80  4262.10    259    3.99     15        1500.00
       BUSSEN QUARRY              20-4300-33  -04     1422   15   736.80  4262.10    259    3.99     15        1500.00
       N L INDUSTRIES             20-4300-09  -01     2816   15   738.59  4268.08    316    4.08     68          75.69
       N L INDUSTRIES             20-4300-09  -02     2816   15   738.59  4268.07    316    4.08     68         101.33
       N L INDUSTRIES             20-4300-09  -03     2816   15   738.61  4268.08    316    4.08     69            .35
       N L INDUSTRIES             20-4300-09  -04     2816   15   738.61  4268.09    316    4.08     69            .35
       N L INDUSTRIES             20-4300-09  -05     2816   15   738.61  4268.10    316    4.08     69           4.99
       N L INDUSTRIES             20-4300-09  -06     2816   15   738.61  4268.08    316    4.08     83         108.64
       N L INDUSTRIES             20-4300-09  -10     2816   15   738.66  4268.09    316    4.08     68          43.48
       N L INDUSTRIES             20-4300-09  -11     2816   15   738.45  4268.14    316    4.17    100           1.50
       COLUMBIA QUARRY PLT 81     16-0900-12  -02     1422   15   745.56  4269.60     20    4.19     20          49.50
       COLUMBIA QUARRY PLT 81     16-0900-12  -03     1422   15   745.56  4269.60     20    4.19     20          65.00
       N L INDUSTRIES             20-4300-09  -13     2816   15   738.41  4268.14    315    4.19    123            .02
       N L INDUSTRIES             20-4300-09  -16     2816   15   738.45  4268.20    316    4.20    133           1.50
       GREAT LAKES CARBON         20-4280-12  -02     3312   15   738.63  4268.60    319    4.31    200          16.88
       GREAT LAKES CARBON         20-4280-12  -01     3312   15   738.75  4268.73    321    4.32    200           2.81
       E ST LOUIS STONE           16-0900-11  -01     3281   15   746.80  4269.60     30    4.54     15         125.00
       E ST LOUIS STONE           16-0900-11  -02     3281   15   746.80  4269.60     30    4.54     15         252.00
       E ST LOUIS STONE           16-0900-11  -03     3281   15   746.80  4269.60     30    4.54     15         504.00
       E ST LOUIS STONE           16-0900-11  -04     3281   15   746.80  4269.60     30    4.54     15         252.50
       E ST LOUIS STONE           16-0900-11  -05     3281   15   746.80  4269.60     30    4.54     15        9020.00
       E ST LOUIS STONE           16-0900-11  -06     3281   15   746.80  4269.60     30    4.54     15        2000.00
       STOLLE QUARRY              16-0900-10  -01     3281   15   747.00  4269.70     31    4.66     15            .72
       STOLLE QUARRY              16-0900-10  -02     3281   15   747.00  4269.70     31    4.66     15           2.17
       STOLLE QUARRY              16-0900-10  -03     3281   15   747.00  4269.70     31    4.66     15         435.00
       STOLLE QUARRY              16-0900-10  -04     3281   15   747.00  4269.70     31    4.66     15           5.80
       STOLLE QUARRY              16-0900-10  -05     3281   15   747.00  4269.70     31    4.66     15         500.00
```

AREA SOURCE SUMMARY

Site: RAMS 118, Mule Road and Illinois State Highway 3

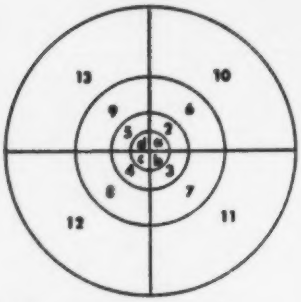
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		0.6	0.5	0.5	0.5	0.5	2.0	1.7	1.5	1.7	9.5
Res/Com/Ind fuel		1.5	1.1	1.1	1.1	1.1	4.3	4.0	5.3	5.4	24.9
Incinerators											
Rail/Air/Vessel		1.5	1.1	1.1	1.1	1.1	4.3	3.7	4.7	4.9	23.5
Auto exhaust	7.1x10^{6}VMT	0.9	0.4		0.7	0.3	1.2		1.2		4.7
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards											
Clean streets	7.1x10^{6}VMT	4.6	2.3		3.4	1.5	6.0		6.3	0.2	24.3
Comm streets											
Unpaved roads											
Cleared areas											
Construction											
Agriculture	1300 ac	2.4	1.2	2.3	2.2		2.1	3.3	9.3	9.6	32.4
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	4.5	12.2	45.3	62.0
IND PROCESSES				
FUGITIVE DUST	7.0	12.9	36.8	56.7
Total	11.5	25.1	82.1	118.7

DESCRIPTION OF SITE

SAROAD code - RAMS 120

Location - Lackland Road



Monitor height - 13 ft, on roof of trailer

Land use, by sector -

1a general industry
1b agriculture
1c light industry
1d light industry

2 light industry
3 undeveloped
4 undeveloped
5 undeveloped

6 central commercial
7 dense residential
8 dense residential
9 central commercial

10 dense residential
11 dense residential
12 dense residential
13 dense residential

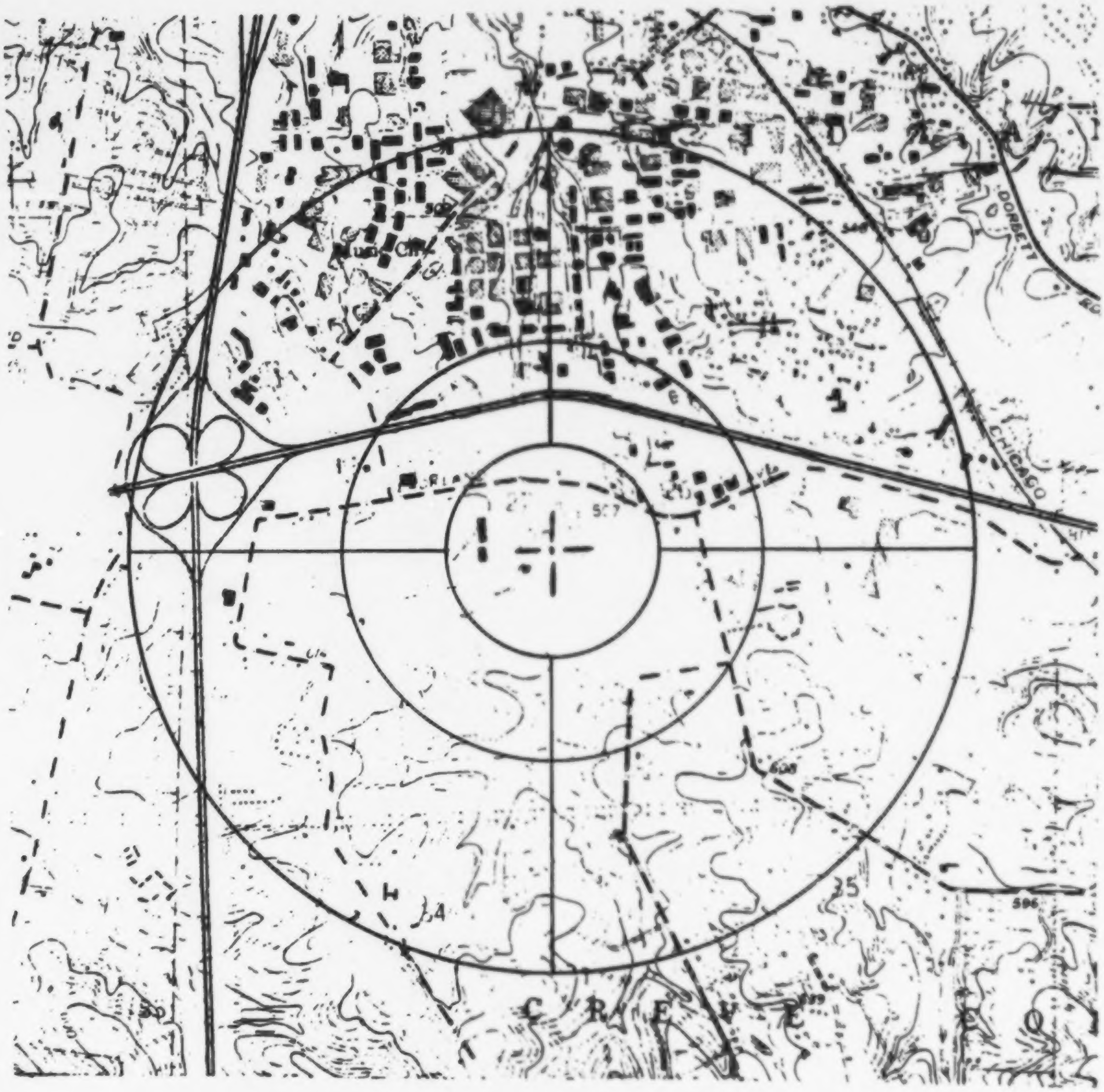
Topography - no special terrain

Localized sources, within 200 ft of monitor -

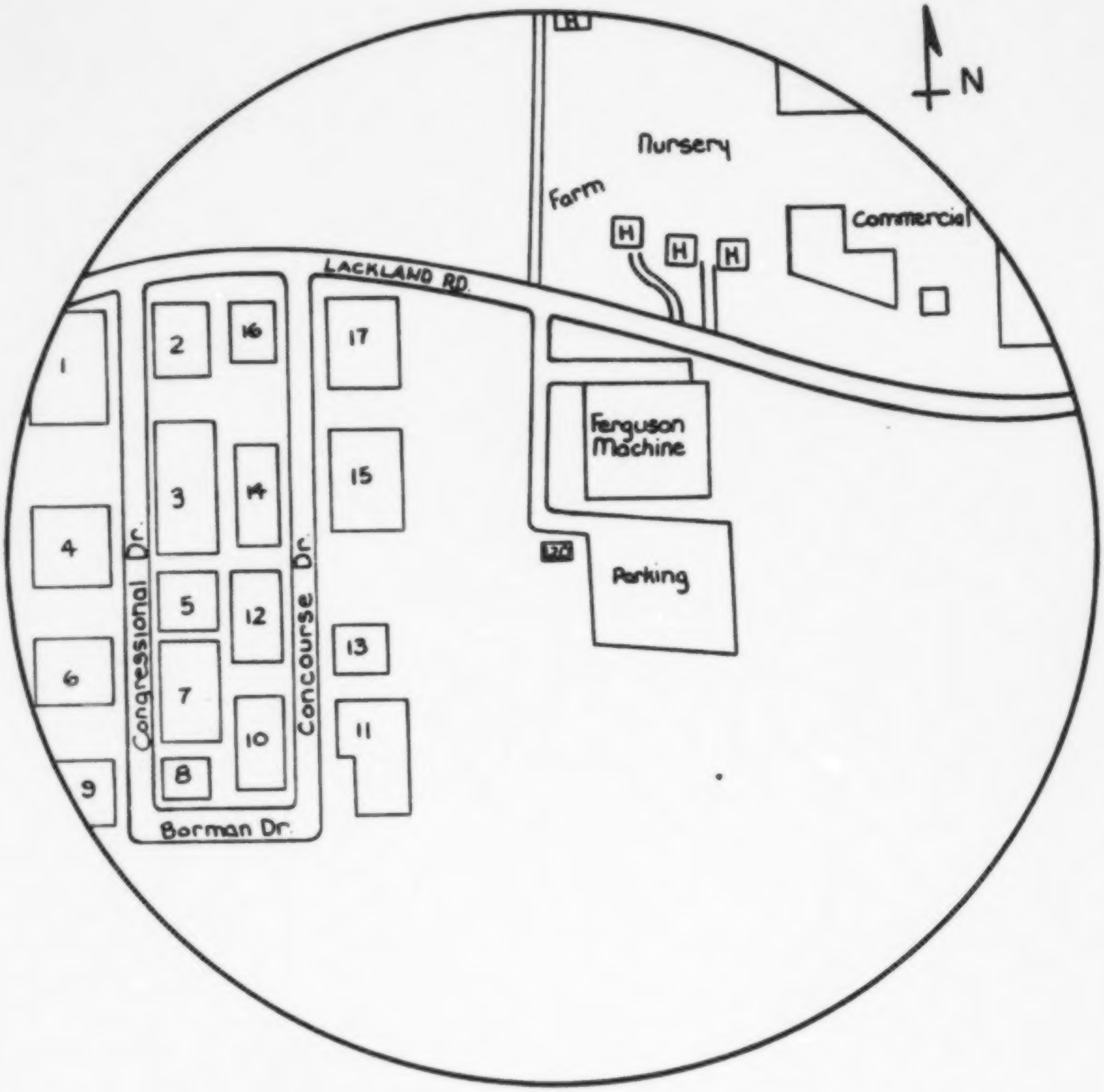
Source	Distance	Description
Driveway	16 ft	300 ADT

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	50	This information was not available
1975	60	


CHICAGO
DORSETT
507
508
506
35
34
30
C R E V E C O

One mile radius around RAMS 120, Lackland Road site.


N
Nursery
Farm
Commercial
H
H
H
H
LACKLAND RD.
1
2
16
17
3
14
15
4
5
12
13
6
7
10
11
8
9
Congressional Dr.
Concourse Dr.
Borman Dr.
Ferguson Machine
120
Parking

One-quarter mile radius around RAMS 120, Lackland Road site.

Viewed to the north.

Viewed to the west-southwest.
Sampler at RAMS 120, Lackland Road.

POINT SOURCE SUMMARY

```
          STATION( 8): RAMS 120
               NAME:                                ELEVATION:     0 FT.
               ADDRESS:
               UTM ZONE: 15     UTMV:  4285.9     UTMH: 723.1

                            STACKS WITHIN 5 MILE RADIUS

                                                                                  DIST  STK HT    PARTICULATE
                                                     UTM
          PLANT               PLANT-STACK-CODE  SIC  ZONE   UTMV     UTMH    ANGLE  (MI.)  (FT)     EMIS(TONS)


               THERE ARE NO STACKS WITHIN 5 MILES OF THIS STATION
```

AREA SOURCE SUMMARY

Site: RAMS 120, Lackland Road

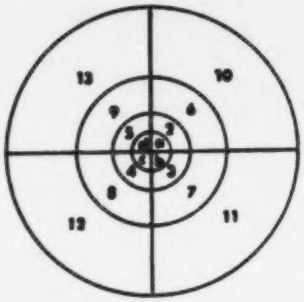
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel		0.5	0.94	0.09	0.6	0.6	0.4	0.3	1.7	2.0	6.3
Res/Com/Ind fuel		2.9	2.5	2.5	1.8	1.8	10.5	9.5	6.8	8.1	46.4
Incinerators											
Rail/Air/Vessel		0.06	0.08	0.08	0.01	0.01	0.5	0.2	0.08	0.09	1.11
Auto exhaust	73.3x10^6VMT	0.2	3.6	0.6	0.1	3.3	5.4	1.2	14.1	19.9	48.4
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards											
Clean streets	73.1x10^6VMT	0.9	18.5	3.2	0.4	17.1	28.0	6.5	72.6	102.6	249.8
Comm streets	7.8x10^4VMT	1.2									1.2
Unpaved roads											
Cleared areas	26 ac	1.2	0.4								1.6
Construction	13 ac	12.6	2.2			1.2					16.0
Agriculture											
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	3.7	17.8	80.8	102.3
IND PROCESSES				
FUGITIVE DUST	15.9	43.0	209.7	268.6
Total	19.6	60.8	290.5	370.9

DESCRIPTION OF SITE

SAROAD code - RAMS 122

Location - County Highway 4



Monitor height - 13 ft, on roof of trailer

Land use, by sector -

1a	agriculture	6	agriculture
1b	agriculture	7	agriculture
1c	agriculture	8	agriculture
1d	undeveloped	9	agriculture
2	agriculture	10	agriculture
3	agriculture	11	agriculture
4	agriculture	12	agriculture
5	agriculture	13	agriculture

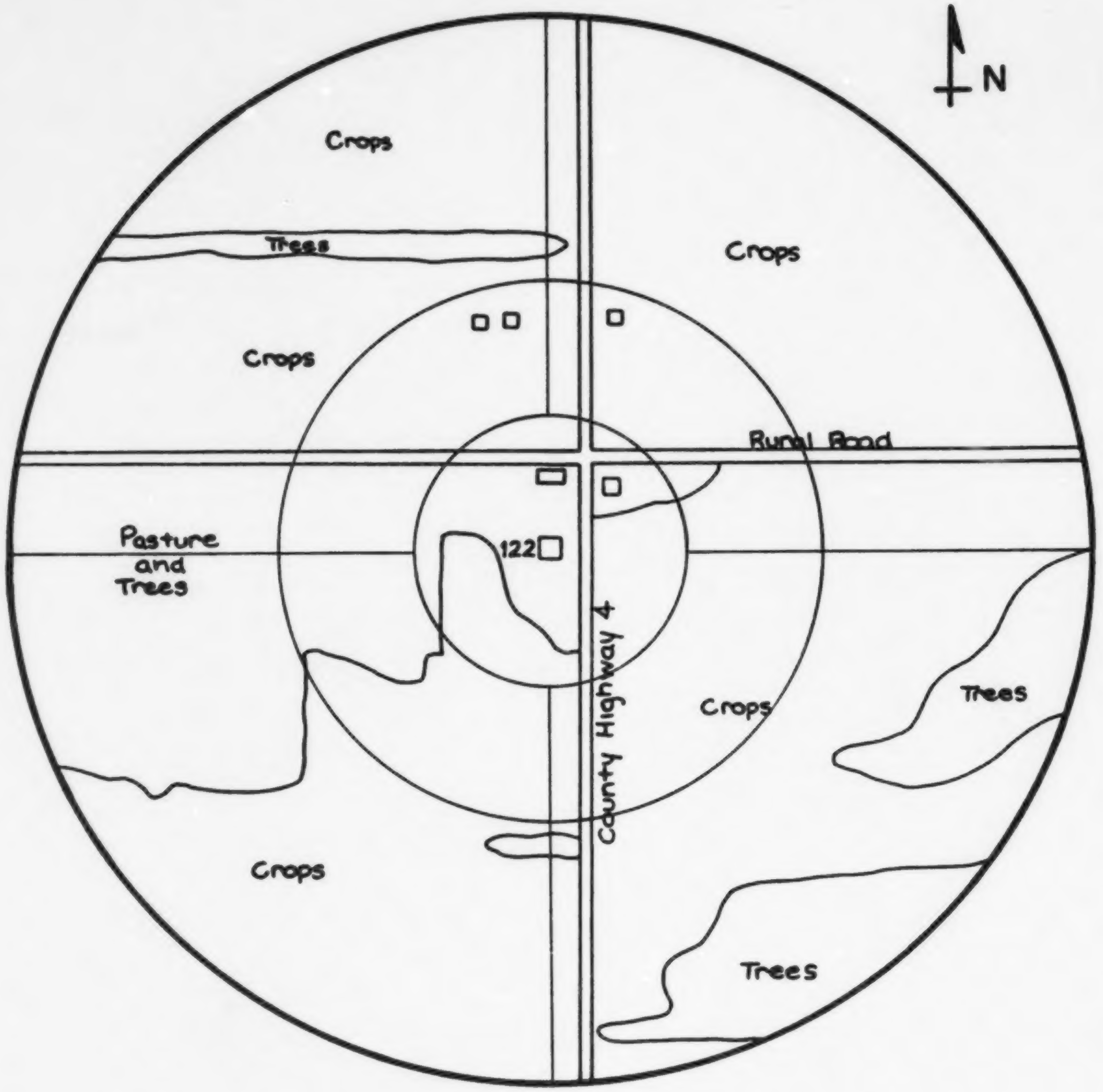
Topography - no special terrain

Localized sources, within 200 ft of monitor -

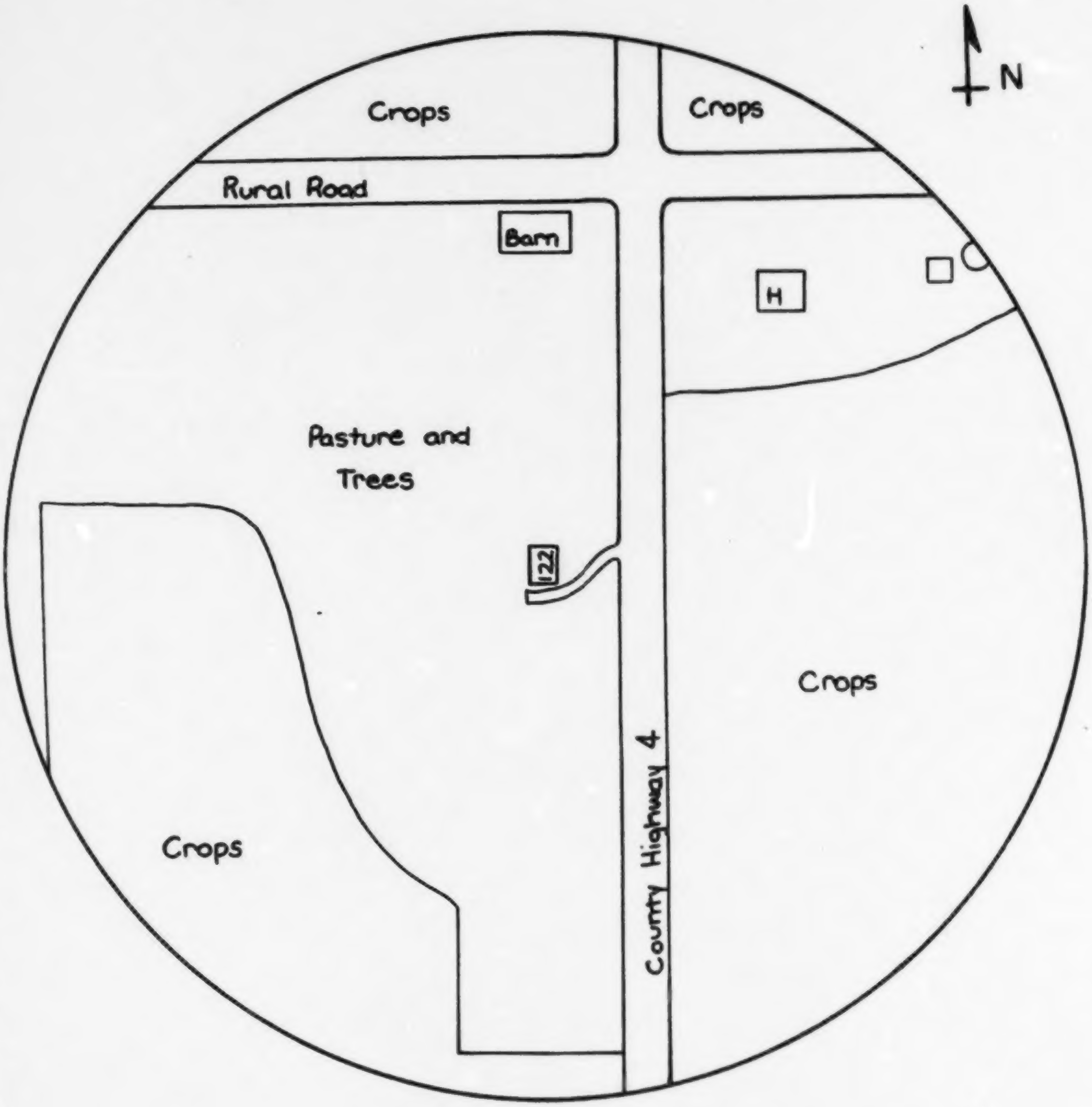
Source	Distance	Description
County Highway 4	140 ft	125 ADT

Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	52	This information was not available
1975	45	


N
Crops
Trees
Crops
Crops
Rural Road
122
Pasture and Trees
County Highway 4
Crops
Trees
Crops
Trees

One mile radius around RAMS 122, County Highway 4 site.


N
Crops
Crops
Rural Road
Barn
H
Pasture and Trees
122
Crops
County Highway 4
Crops

One-quarter mile radius around RAMS 122, County Highway 4 site.

Viewed to the northeast.

Viewed to the southeast.
Sampler at RAMS 122, County Highway 4.

POINT SOURCE SUMMARY

```
          STATION( 9): RAMS 122
              NAME:                                  ELEVATION:    0 FT.
              ADDRESS:
              UTM ZONE: 15    UTMV:  4329.2    UTMH: 741.6

                         STACKS WITHIN 5 MILE RADIUS

                                                   UTM                                   DIST STK HT    PARTICULATE
          PLANT                PLANT-STACK CODE  SIC  ZONE   UTMV    UTMH    ANGLE  (MI.)  (FT)       EMIS(TONS)


              THERE ARE NO STACKS WITHIN 5 MILES OF THIS STATION
```

AREA SOURCE SUMMARY

Site: RAMS 122, County Highway 4

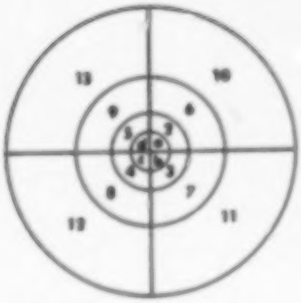
Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel											
Res/Com/Ind fuel											
Incinerators											
Rail/Air/Vessel											
Auto exhaust	9.0×10^4VMT										
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards											
Clean streets	9.0×10^4VMT		0.1				0.1	0.1			0.3
Comm streets											
Unpaved roads											
Cleared areas											
Construction											
Agriculture	1500 ac	2.3	2.2	2.3	1.6	1.6	9.3	4.9	4.9	9.3	38.4
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION				
IND PROCESSES				
FUGITIVE DUST	2.3	7.8	28.6	38.7
Total				

DESCRIPTION OF SITE

SAROAD code - RAMS 124

Location - County Highway 1



Monitor height - 13 ft, on roof of
trailer

Land use, by sector -

1a	agriculture	6	agriculture
1b	agriculture	7	agriculture
1c	agriculture	8	agriculture
1d	agriculture	9	agriculture
2	agriculture	10	agriculture
3	agriculture	11	agriculture
4	agriculture	12	agriculture
5	agriculture	13	agriculture

Topography - no special terrain

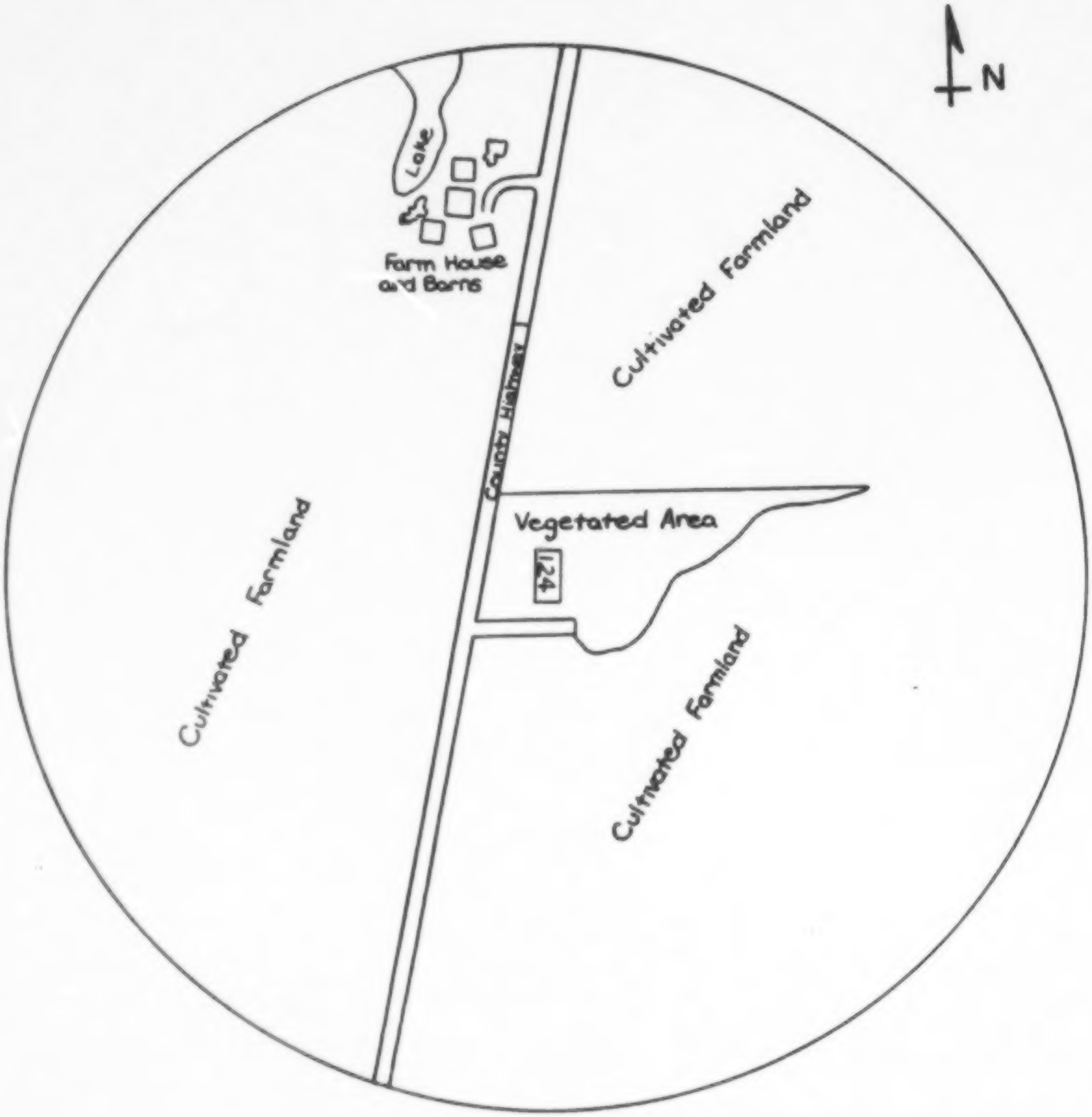
Localized sources, within 200 ft of monitor -

Source	Distance	Description
County Highway 1	120 ft	750 ADT

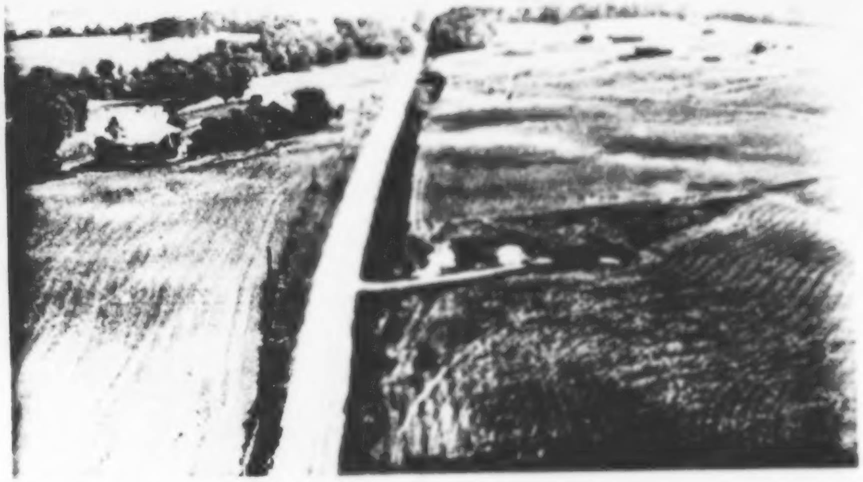
Air quality data -

Year	Annual geometric mean, ug/m^3	No. of samples
1976	48	This information was not available
1975	46	

One mile radius around RAMS 124, County Highway 1 site.


N
Lake
Farm House and Barns
County Highway
Cultivated Farmland
Vegetated Area
124
Cultivated Farmland
Cultivated Farmland

One-quarter mile radius around RAMS 124, County Highway 1 site.



Viewed to the northeast.

Viewed to the south-southwest.
Sampler at RAMS 124, County Highway 1.

POINT SOURCE SUMMARY

```
----------------------------------------------------------------------------------------------------------------------------
            STATION(S): RAMS 124
                NAME:                                       ELEVATION:    0 FT.
                ADDRESS:
                UTM ZONE: 15  -  UTMV:  4236.5     UTMH: 749.3
----------------------------------------------------------------------------------------------------------------------------
                           STACKS WITHIN 5 MILE RADIUS

                                                 UTM                                  DIST STK HT    PARTICULATE
-----------PLANT-----------PLANT-STACK-CODE---SIC---ZONE----UTMV-----UTMH-----ANGLE---(MI.)--(FT)-------EMISSIONS(TONS)------
----------------------------------------------------------------------------------------------------------------------------

               THERE ARE NO STACKS WITHIN 5 MILES OF THIS STATION
----------------------------------------------------------------------------------------------------------------------------
```

AREA SOURCE SUMMARY

Site: RAMS 124, County Highway 1

Source category	Activity rate	Emissions by sector, ton/yr									
		1	2	3	4	5	6	7	8	9	Total
COMBUSTION:											
Off hwy fuel											
Res/Com/Ind fuel											
Incinerators											
Rail/Air/Vessel											
Auto exhaust	0.5x10^{6}VMT	0.1					0.1		0.1		0.3
AREA SOURCE INDUS PROCESSES:											
Ind processes											
FUGITIVE DUST:											
Railroad yards											
Clean streets	0.5x10^{6}VMT	0.4	0.2		0.2		0.4		0.4		1.6
Comm streets											
Unpaved roads											
Cleared areas											
Construction											
Agriculture	1800 ac	3.0	2.3	2.2	2.2	1.9	8.4	7.7	9.2	8.9	45.8
Storage areas											
Unpaved pkg lots											

Recap	Emissions by sector, t/yr			
	1	2-5	6-9	Total
COMBUSTION	0.1		0.2	0.3
IND PROCESSES				
FUGITIVE DUST	3.4	9.0	35.0	47.4
Total	3.5	9.0	35.2	47.8

APPENDIX A

LISTING OF POINT SOURCES IN THE ST. LOUIS AQCR

Table A-1. LISTING OF POINT SOURCES IN THE ST. LOUIS AQCR

No.	Name	State	County	AQCR	ID#	Emission, tpy	Stack ht,ft	UTM Coord x	UTM Coord y	SIC
1.	Granite City Steel	14	4680	070	0009	370	160	748.4	4286.5	3312
						67	175			
						92	100			
						31	225			
						665	250	749.5	4286.3	
						1295	107			
						259	150	749.8	4286.3	
						21	108			
2.	American Steel Foundry	14	4680	070	0003	78	41	747.0	4287.3	3493
						11	200			
3.	Union Electric (Venice)	14	4680	070	0008	1758	237	745.5	4283.1	4911
4.	Municipal Incinerator N.	26	4280	070	0024	159	250	743.9	4284.2	4953
5.	PVO International	26	4280	070	0058	372	70	744.8	4282.7	2079
6.	Mallinckrodt Chemical	26	4280	070	0017	53	121	744.2	4282.9	2899
7.	Missouri Portland Cement	26	4300	070	0037	6384	235	741.8	4290.8	3241
8.	Municipal Incinerator S.	26	4280	070	0025	159	250	741.8	4273.5	4953
9.	Monsanto Company	26	4280	070	0023	231	150	744.0	4276.5	2899
10.	Anheuser Busch, Inc.	26	4280	070	0003	54	225	742.8	4275.5	2082
						8	75			
11.	Wash. Univ. Euclid Pwr.	26	4280	070	0040	396	178	738.2	4279.6	4911
12.	Wash. Univ. Campus Pwr.	26	4300	070	0016	244	178	743.4	4281.2	4911
13.	Continental Grain Co.	14	6900	070	0020	77	15	746.0	4279.0	2041
14.	Alpha Portland Cement	26	4300	070	0001	114	272	733.1	4267.7	3241
15.	N.L. Industries	26	4300	070	0009	174[a]	83	738.6	4268.1	2816
						230[a]	69			
16.	Columbia Quarry #1	14	6900	070	0012	144	20	745.5	4269.6	1422

[a] Emission estimates are probably too low.

Table A-1 (continued). LISTING OF POINT SOURCES IN THE ST. LOUIS AQCR

No.	Name	State	County	AQCR	ID#	Emission, tpy	Stack ht,ft	UTM Coord x	y	SIC
17.	Bussen Quarry									
18.	Moss American, Incorporated									
19.	Obear Nestor Glass									
20.	Union Electric (Cahokia)									
21.	Stolle Quarry									
22.	East St. Louis Stone									
23.	Banner Iron Works									
24.	Clark Oil Company									
25.	American Oil Refinery									
26.	Columbia Quarry									
27.	Stolle Quarry									

APPENDIX B

DEVELOPMENT OF EMISSION FACTORS

RAILROAD YARDS

Most of the emissions in train yards appear to be from wind erosion rather than from train movement. Therefore, an adaptation of the U.S. Department of Agriculture's wind erosion equation was used as the basis for deriving emission factors for railroad yards. The modified equation estimates annual suspended particulate emissions due to wind erosion from exposed soil surfaces:[13]

$$E = a\ I\ K\ C\ L'\ V' \qquad \text{(eq.1)}$$

where E = emission factor, ton/acre/yr

a = portion of total wind erosion losses that would be measured as suspended particulate, estimated to be 0.025

I = soil erodibility, ton/acre/yr

K = surface roughness factor

C = climatic factor

L' = unsheltered field width factor

V' = vegetative cover factor

In this equation, K, C, L', and V' are all dimensionless. An average erodiblity (I) of 86 ton/acre/yr was assumed to be applicable for the soil in the railroad yards. The area around railroad yards generally has a fairly smooth surface which is equivalent to a K value of 1.0. The climatic factor for the St. Louis area is 0.10. An average width of 1000 ft was assumed for railroad yards, since this is not a critical variable in the equation. The L' value equivalent to L = 1000 ft was determined from a nomograph in which soil type is also a variable--0.85. There is no vegetation in rail yards so V = 0 and V' = 1.0. Also, these areas are generally treated with oil or chemicals to reduce dust and weed problems. Therefore, the emissions have been estimated with the above values and the following assumptions:

- no vegetation
- sandy soil (I = 86)
- half the area is stabilized, with an emission rate of 20 percent of the unstabilized area
- train traffic increases the wind erosion emissions by 20 percent

Therefore, the resulting emission factor is:

$$E = (0.025)(86)(1.0)(0.10)(0.85)(1.0)\left(\frac{1 + 0.2}{2}\right)(1.2)$$
$$= 0.1 \text{ ton/acre/yr}$$

REENTRAINED DUST FROM PAVED STREETS

The most recent emission factors for estimating emissions from paved roads were obtained from a draft of AP-42. The recommended emission factors are 5.0 gm/VMT for clean streets and 20 gm/VMT for commercial streets. These factors include an exhaust emission factor and are not corrected for days with rain.

Based on national estimates for the percentage of heavy duty gasoline and diesel trucks, an exhaust emission factor of 0.6 gm/VMT was calculated from published emission factor data.[14] This factor was subtracted from the paved road emission factors and the resulting values were corrected for rainfall.

Historical rainfall data for St. Louis indicate a mean of 108 days with at least 0.01 inch of rain.[15] Based on this information, the reentrained dust emission factors were reduced by approximately 30 percent. The corrected emission factors are: 3.1 gm/VMT for clean streets and 13.6 gm/VMT for commercial streets.

UNPAVED ROADS

Many different groups have investigated emissions from unpaved roads. All the studies show emission rates usually in the range of one to 20 lb/VMT, and show that the rate is highly dependent on vehicle speed. After reviewing these studies, EPA selected the following emission factor for publication in AP-42:[14]

$$E = (0.6)(0.81)(s)(S/30)\left(\frac{365 - w}{365}\right) \quad \text{(eq.2)}$$

where E = emission factor, lb/VMT

0.6 = fraction of total particulate less than 30 u diameter

s = percent silt of road surface material

S = average vehicle speed, mph

w = mean annual number of days with 0.01 inch or more of rainfall

The percent silt on gravel road surfaces is about 12 percent based on data presented in the EPA publication, Development of Emission Factors for Fugitive Dust Sources.[13] For graded and drained road surfaces, no aggregate material is applied to the roadbed so it is composed of compacted native soil. The fine material originally on the surface is probably rapidly removed by turbulence from passing vehicles or by wind and water erosion forces. The remaining stable surface is composed of sand- and pebble-sized particles, with dust being generated primarily by the continuing mechanical breakdown of these particles as a result of traffic.

It is assumed that the percent of silt-sized particles on a seasoned dirt road surface is approximately the same as that for gravel, or 12 percent. The mean number of days with 0.01 inch or more of rainfall is 108. Assuming a vehicle speed of 20 mph, the average emission factor is 2.7 lb/VMT.

CLEARED OR EXPOSED AREAS

The modified wind erosion equation described earlier was used for estimating emissions from cleared or exposed areas. An average erodibility (I) of 38 ton/acre/yr was assumed for the soil types common to this area. The cleared areas are generally left with a fairly smooth surface, which is equivalent to a K value of 1.0. The climatic factor for the St. Louis area is 0.10. An average field width of 1000 ft was assumed for all the cleared areas, since this is not a critical variable in the equation. The L' value equivalent to L = 1000 ft was determined from a nomograph in which soil type is also a variable--0.64. There is no vegetation on cleared areas, so V = 0 and V' = 1.0.

Based on these input data, the average emission rate from cleared areas would be 0.06 ton/acre/yr.

CONSTRUCTION

The emission factor presented in AP-42 of 1.2 ton/acre/mo was corrected for the climatic conditions in St. Louis by use of the equation:[14]

$$E = \frac{1.2}{(PE/50)^2} \qquad \text{(eq.3)}$$

where PE = 93 for St. Louis

E = 0.35 ton/acre/mo

This value is appropriate for residential and commercial construction with excavation and regrading, and includes the effect on emission reduction of moderate watering of the site. Most construction projects are assumed to be fugitive dust sources for only three or four months a year.

AGRICULTURE

Total emissions from agriculture are calculated from the sum of tilling and wind erosion emissions. The factor for tilling from AP-42 is:[11]

$$E = (0.8)(1.4)s/(PE/50)^2 \qquad \text{(eq.4)}$$

where E = emission factor, lb/acre/run

0.8 = fraction of total particulate less than 30 u diameter

s = percent silt in surface soil

PE = precipitation-evaporation index

An average of three tilling operations per year is assumed, and a silt content of 40 percent. Therefore, total tilling losses are 38.8 lb/acre.

The modified wind erosion equation described earlier is recommended for determining the wind erosion component of agricultural emissions. All variables in the equation except C are dependent on either the soil type or crop grown on each field. The following average values were assumed for the St. Louis area:

$I = 47$

$K = 0.6$

$C = 0.10$

$L = 1000$ ft, $L' = 0.72$

$V = 500$ lb/acre, $V' = 0.14$

$E = 0.007$

Therefore, the combined agricultural losses are 0.026 ton/acre/yr.

AGGREGATE STORAGE AREAS

The emission factor for this source category was based on sampling performed in the Kansas City and Cincinnati areas. The emission factor (E) is:[13]

$$E = \frac{13.2}{(PE/100)^2} \qquad \text{(eq.5)}$$

where PE = 93 for St. Louis
E = emission factor, lb/acre/day

Assuming activity for six days a week, the annual emission factor is:

$$E = 2.4 \text{ ton/acre/yr}$$

UNPAVED PARKING LOTS

If the average number of vehicles using a parking lot daily and the average distance of travel in the lot can be estimated, these data can be converted to VMT/yr and then multiplied by the emission factor for unpaved roads to determine unpaved parking lot emissions. With an average speed of 10 mph in the parking lots, the emission factor is 1.4 lb/VMT. Usage of most lots for five or six days per week was assumed in calculating annual VMT.

UNPAVED STORAGE AREAS

No factor was found for this source category. By comparison with other source categories, it was estimated that annual emissions per acre from this source were greater than for a cleared area (0.06 ton/acre/yr) or railroad yards (0.1), but not nearly as high as aggregate storage (2.4) or construction (1.4). A value of 0.2 ton/acre/yr was used for this minor source category.

GRAIN ELEVATORS

A value of 1.80 ton/silo/yr was developed from file data for a previous PEDCo study of particulate air quality in rural Kansas and Nebraska.[1] This same value was applied here for sources for which NEDS data were not available.

INCINERATORS

The emission factor for multiple chamber industrial/ commercial incinerators from AP-42 was used in this inventory.[14] That value is 7.0 lb/ton of refuse incinerated.

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